PAGE 6 PUBLISHING's

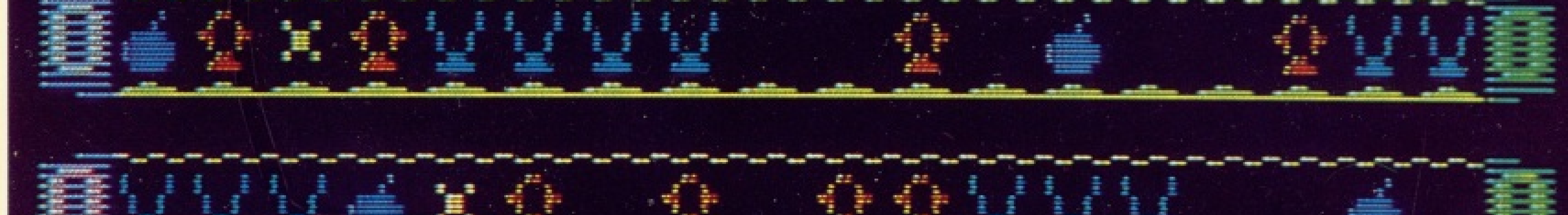
NEW ATARI USER

Issue 45 £1.75
August/September

XL/XE

DILEMMA

A 1 or 2 player platform game that makes you think



SOFTWARE BARGAINS
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THE VIDEO CONNECTION



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ST FILE

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ULTIMA V - STILL AS GOOD?
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Also from PAGE 6

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Cassette £4.95/Disk £6.95
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MIDIMASTER

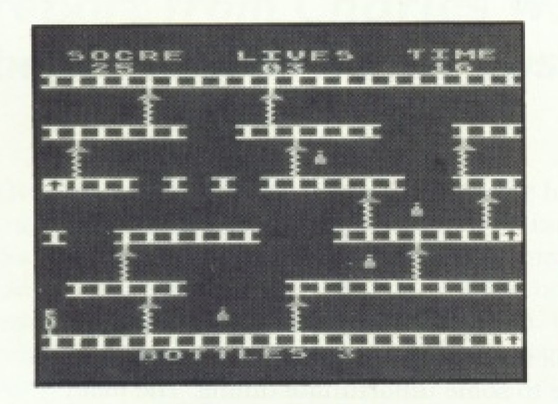
The package that allows you to connect any Midi synthesiser to your XL/XE. Record in real time on up to 8 tracks - play back with any voice - change tempo - transpose - plays AMS or Music Studio files - includes voice patch editors for certain Casio and Yamaha synths - and more.

Comes complete with interface cable, software and full instructions

Price £24.95

All items on this page may be ordered with the order form on page 54 or by writing to
PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR.
Credit card orders may be telephoned to 0785 213928 or FAXed to 0785 54355

'The magazine for the Dedicated Atari User'



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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles, all payments being made at the end of the second month shown on the cover of the issue concerned.

The next issue of NEW ATARI USER will be on sale 27th September
Editorial copy date is 20th August

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Issue 45 August/September 1990

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PAGE 6 PUBLISHING's NEW ATARI USER

Editorial

Issue 45
August/September 1990

'The Magazine for the Dedicated Atari User'

ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the usual editing, layout, paste up and sundry other things and managed to avoid the nervous breakdown for another issue!

Sandy did the usual in looking after the advertising, organising shows, looking after the mail order and lots more

Mrs Busby is settling in quite nicely but all she talks about is shopping!

John R. Barnsley doesn't work for us any more

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Mark Hutchinson **John S Davison**
John Davison jr **John Sweeney**
Paul Rixon **Damon Howarth**
Ian Finlayson

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

Come on Garry ... this is your last chance

The cover picture is a screenshot from our type-in listing DILEMMA because we simply couldn't think of a way to illustrate the program in any other way - at least not in a way that would be reasonably easy to do.

One of the finest albums recently has been ONE WORLD, ONE VOICE by various artists, a brilliant concept that takes recordings from around the world and blends them into one coherent piece. It even includes some rapping. Now rap is normally spelt with a capital C but in this context it fits in quite nicely. A big surprise, and favourite album at the moment, is The Roches latest. Also in the player this time, a double CD concert recording by Tim Buckley, someone I haven't listened to for fifteen years but still remarkably good. Now eagerly awaiting Roy Harper's Once with his comments on Islam - should take some of the pressure off of Penguin Books! Also contributing to this issue were Vin Garbutt, Tom Petty, Patrick Street, Bill Staines, The Pretenders, Paul Young, Bruce Hornsby and many of the long term favourites.

NEW ATARI USER is the magazine, PAGE 6 is the concept. Wherever you see PAGE 6 you'll know what it means!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, STWriter, Protext and Fleet Street Publisher. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to The Setting Studio in Newcastle (a typesetting bureau who really know what they are doing with the ST) to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

What to talk about this time? Hard to think at the moment since this issue has been one of the hardest of all to put together due to some unfortunate timing. The main problem was the 16-Bit Computer Fair held at the end of June which fell right in the middle of the typesetting and was a nightmare to fit in, especially as we had only fairly recently come back from the Atari '90 show. We thought long and hard about doing this show but finally decided to go so that all the guys who pinched our ideas wouldn't all of the public awareness. Some of you 8-bit diehards might be wondering why we go to shows such as this, but the fact is that everything we do contributes to the magazine and helps keep it going, the more we can diversify the better chance there is that your favourite magazine will survive. The problem with diversifying is that it makes even more work for a team that already does more work than it can cope with but if we want to continue with the magazine, that is the way it has to be.

Quite apart from the financial benefits (sometimes!), it must be said that doing these shows is a lot of fun and gives us a chance to meet people. If time allowed we would do a lot more, maybe even organise our own roadshows visiting different parts of the country. Now that would be nice, wouldn't it, a roadshow with half a dozen of the companies, individuals and user groups that still support the 8-bit getting together, hiring a small hall or other venue in your part of the country and putting together a mini show. Great idea, but probably unworkable in practice since it would take a lot of organising and would have to fit into a schedule that doesn't allow more than a couple of free days a month as it is. Still we can dream!

CAN YOU GET IT?

We seem to be going through the old problem of lack of availability once more with several readers reporting that their local newsagent no longer stocks NEW ATARI USER or tells them that the magazine is no longer being produced. This situation occurs because our circulation is smaller than most of the other computer magazines and with so many magazines and limited shelf space something has to get squeezed out. There is no reason why any newsagent should not stock NEW ATARI USER and if we can pinpoint specific locations, we can bring the situation to our distributor's attention so that they can do something about it. What we need to know is which of the major shops are not stocking NEW ATARI USER and what excuses they are giving but in order to do anything about it we need these details in writing. So, if you care about the continuance of NEW ATARI USER as a newsstand publication, please let us know of any problems. What you need to do is ask the shop concerned why there is no copy of NEW ATARI USER on the shelves and then write to us letting us know the name and address of the shop, the date you enquired, and the reasons given for the magazine not being on show. Obviously, not every shop selling magazines will stock the title but it should be on sale in every major town in the country, if it isn't then you are going to be the ones to lose, even if you subscribe, because we need to keep selling as many copies as we can. Do your bit, but put it in writing!

MORE CONTRIBUTIONS

Looking through our contributions box for this issue, I realised that we are, once again, running short of good contributions for the magazine. We need a whole range of things especially some good quality games and some more BONUS programs. There are also very few programming articles in the pipeline and some more articles like the one on Display Lists from Issue 43 wouldn't go amiss. In fact they would be welcomed with open arms!

There are dozens of folks reading this issue who are capable of writing top quality programs and several who could sit down and write an article about programming any similar aspect of using their Atari that may interest them and if those people would just get down and do it, we could start planning several issues ahead. As I have always said, this is your magazine and without your contributions it will fade away, and that's not what you want is it?

Les Ellingham

news scene

With very little news on the 8-bit front in this country we are pleased to be able to present an encouraging report from Charles W. Pinter Jr. on how there is beginning to be an upsurge of interest in the States

Over the past few years, it has been getting harder and harder to find decent support for our Ataris in the U.S. Atari has all but ignored the U.S. market in favour of Europe and the U.K. I don't know how many times I've heard the phrase, "Oh yeah, I remember Atari. Didn't they go out of business awhile back?"

Fortunately, Atari is starting to make a comeback in the U.S., although it doesn't seem to be as strong as they had earlier predicted. The DRAM chip shortage is over, the PORTFOLIO and LYNX are doing well, and Atari has finally released some new cartridge games for the 8 bits. Most surprising, is the fact that Atari is now supplying Fleetwood Mac with computers for their world tour.

In addition to the renewed support from Atari, we have seen some amazing hardware and software cropping up from hardcore enthusiasts and third party developers. Here are brief details some of the best.

SOFTWARE

SNAPSHOT is a program from Tom Hunt that allows any 128k, or more, Atari 8 bit to have two programs in memory at one time and instantly switch between them with the HELP key.

DAISY DOT 3 is a fantastic print processor by Roy Goldman that turns your printed output into NLQ text with the ability to put graphics on the page too. It comes with several NLQ fonts and a font editor so you can design your own or convert existing 8 bit fonts. You also get **Billboard** by Chris Wareham, which allows you to print your MicroPainter pictures in an infinite number of sizes.

There are 2 popular GIF picture file viewers. The first from Don Davis is called **ATARIVIEW 8**. It uses Gr.8 and Gr.15 for higher resolution. The other one, from Jeff Potter, is called **ApacView** and uses Gr.9 and Gr.11 for more colours.

YEMACYB is a program from Michael L. Clayton that allows you to use a standard dot matrix printer to achieve full colour printouts. You can even make T-shirt iron-ons with a special ribbon.

HARDWARE

Bob Wooley has several **UPGRADES** including one that turns the XF551 into a dual 5.25" and 3.5" 720k disk drive, and another that adds an ANTIC chip for 4,095 colours.

Innovative Concepts have the **EASY SCAN** image scanner that uses fibre optics to scan a picture into the computer.

Computer Software Services have the **Super E-Burner** which lets you burn up to 1 MEG EPROMS. **The Black Box** has a hard disk drive interface, a parallel printer port, a true 19.2k baud RS232 port for modems, a 64k printer buffer, a machine language monitor, a screen dump feature, and can be upgraded to add any mixture of four 5.25" or 3.5" drives. With the upgrade you can also read and write in ST or IBM formats. **The Multiplexer** is a device that allows 8 Ataris to use the same peripherals. A BBS system is under development that allows 8 users to be online and chat at the same time.

Chuck Steinman of DataQue has the **Turbo816** which turns the 8 bit into a real 16 bit computer but maintains compatibility with all 8 bit software.

GUMBY is an upgrade that provides us with 8 sound channels and real stereo, with new versions of Pokey Player and AMS.

The **TransKey** from Micro Solutions is a device that lets you connect an IBM keyboard to your Atari.

As you can see, things are finally looking up for us Atarians. Thanks to the dedication and hard work of several people, the Atari 8 bits will not become obsolete any time soon!

Mailbag

Got a point to make?

Got any questions to ask?

Write to Mailbag P.O. Box 54 Stafford ST 16 1DR

LEARNING TO PROGRAM

I own a 130XE and I am very pleased with it. I have only been playing games until recently when I realised that I wasn't using it to its full potential. I would like to buy the best possible book to help me learn how to program and your advice on which to choose would be appreciated.

I have a 1050 disk drive and DOS 2.5. How do I use the utilities? To increase the programmability of my Atari would it be better if I purchased something like SpartaDos or MyDos? What's so special about these two compared to older DOS's?

Finally why doesn't any software use the 128k of memory possessed by the Atari? Is it to maintain compatibility with the 65XE? Using this extra 64k of memory could produce even better graphics, sound effects and speech synthesis needed on games like Robocop or Operation Wolf which I hope will be coming out in the near future (hint, Harlequin!).

Mark Pearsons
Isle of Man

Glad to see that you have got round to wanting to program, Mark. Most of the early books on programming the Atari have not been available for some time but NEW ATARI USER has managed to locate supplies of a couple of books that can be recommended. Firstly there is ATARI BASIC, the book that used to come with the old 400 computer, and which your Editor used to learn to program. A bit academic but it will give you a good solid basis of BASIC programming that will serve you well for more complex programming later. The other book is EASY PROGRAMMING FOR THE ATARI MICROS, a little gem of a book that we recommended to everybody until it went out of print a few years ago. We have now found a number of copies of this book and, at £5.95, would not hesitate to recommend it to every owner.

As regards the different DOS's available, we would suggest that you stick with DOS 2.5 for the time being, it will do everything you need it to do. SpartaDos and MyDos are more comprehensive but they require a good working knowledge of the machine and are really for folks who can already program. By the time you become a proficient programmer, you will be able to buy either of these and get good value from them, but they are not really for beginners.

Lastly, about the lack of programs for the 130XE, you are quite right in assuming that software publishers wish to make their games compatible with the 65XE. Although it is a pity for 130XE owners, it makes commercial sense to produce programs that will sell on all models rather than restrict sales. The Atari market is small enough and writing programs that could only be used by some of the user base would not be viable.

ATARI WORLD

I am writing regarding Atari World from whom I ordered two disk games for £16.95 in October 1989 and have not heard from since, despite writing numerous letters and phoning a number of times.

Could you please send them a letter or tell me who I could write to, to complain about this organisation. Also somewhere I could write to help me get my £16.95 back. I am determined to get my money back.

Michelle Empty,
Brockley, London

Sorry, Michelle but you have little chance of getting your money back since Atari World went bust in June owing a lot of money to various people including us. We have lost over £1,000 with no chance of getting it back. Although you can, in theory, make a claim to the liquidators it is, in practice, a waste of time. Over the years we have been publishing we have had about a dozen companies go bust owing us money and, although we have put in all the necessary claims, we have never had one single penny. Sadly, you just have to write it off.

Another company that went bust around the same time is Glasgow Computer Centre, hopefully not many readers will be owed money by them as they didn't do much mail order.

NO ICD

Please could you tell me if Rambo XL is compatible with the 65XE and where it can be obtained as when I enquired about it from Frontier Software I received a letter from Martin Walsh, Marketing Manager for Frontier saying they no longer carry the ICD/OSS product range.

Christopher Roberts
Prestatyn

.... I recently purchased a Citizen 120D printer and ordered the ICD Printer Connection interface cable but after a phone call was told that there are no more stocks of these. Do you know where I can obtain this cable or an alternative?

Paul Shaw,
Oldham

... I am writing to advise you that Frontier Software no longer deal with ICD who make SpartaDos. I found this out after contacting them to ask about a bug in SpartaDos in the format menu where it does not select the correct sectors for AtariDOS format. Frontier were helpful but unable to cure the problem since they no longer deal with ICD. I wonder if there will ever be a perfect version of SpartaDos which is otherwise excellent. The price is not budget so I would expect a little more back up from somebody. If anyone has a cure for this problem I would be pleased to hear about it.

A.L. Hewitt,
Luton

... After ages of waiting to afford SpartaDos and the U.S. Doubler chip I finally was in the position to buy them when, lo and behold, no one has them in the U.K. I was told by Silica Shop of a company in the USA called Happy Computing but I have no telephone number or address. I wonder if you know it, or maybe anyone else that may be able to help.

C.C. Jeffe,
Laindon, Essex

Just a selection from many letters regarding Frontier's decision not to continue with ICD products. This is obviously a blow to 8-bit users since ICD market some innovative products for the XL/XE and in the case of the Printer Connection, have one of the only remaining ready made printer interfaces. We understand that Frontier took their decision reluctantly after finding that they could not get the necessary technical support from ICD on their products. Mr Hewitt hits the nail on the head when he says that customers paying for expensive products deserve back up and it is often only the company producing the software that can answer user's questions. As a distributor Frontier have always been aware that back up should form part of their service but no distributor can answer technical queries without recourse to the people who developed the software. As far as we know ICD still have 8-bit products and we are hoping to obtain items such as the Printer Connection for our readers in the future - we could have some by the time you read this. Whether we will get involved with any other ICD/OSS products is doubtful. In the meantime the only alternative we can suggest for a printer interface is a 'DIY' kit from Derek Fern. If you are confident about building it yourself, Derek can supply you with an interface kit, complete with instructions, that will sit inside your computer. Derek Fern can be contacted on 021 353 5730.

DOS TIPS

Spot the error? The QUICK DOS listing in Issue 44 has a slight error. For some reason, a space has crept into line 1000 before the second 255. This means that the TYPO code is wrong. Take the space out and the correct code is FV.

On the subject of DOS, here are a couple of other tips for DOS 2.5 users. When you return to Basic from the menu, the DUP.SYS program is still in memory and isn't overwritten until you start typing a program, so if you come out of DOS and realise you forgot to do something, then just type X=USR(8309) to get back into it. If you want to load a binary file from Basic you can use this method - first open the binary file on channel 1 (i.e OPEN #1,4,0, "D:filename.ext) then type X=USR(5576) to binary load it. This method won't work with all binary files, though.

Also I thought I'd let you know that I'll be exhibiting at the Alternative Micro Show in November. I'll be there with my usual range of PD and advice, much the same as I did last year. See you all there!

Dean Garraghty,
Doncaster

CONNECTING THE 850

I have just bought a modem and an 850 interface. I have phoned everywhere, including your own Accessory Shop, to try and find a cable that would link the two but with no luck, so I decided to make one myself. It took just under an hour and I thought that some readers might like to know the details.

All you need to do is go to Tandy's and get the following parts:
1) Crimp style 9-position male D-SubConnector (cat. no. 276-1427) at 69p
2) Crimp style 25-position male D-SubConnector (cat. no. 276-1429) at £1.69 or the solder type (cat. no. 276-1547) at £2.49
3) Ribbon cable with 10 conductors (cat. no. 278-7050) at £2.49

I used pliers as I haven't got a crimping tool (costs £7.99 at Tandy's). What you need to do is connect the wires to the connectors as in the following table. The conductors in the cable are colour coded which should make it easier to make the correct pin connections at each end.

850	MODEM
Pin 1	Pin 20
Pin 2	Pin 8
Pin 3	Pin 2
Pin 4	Pin 3
Pin 5	Pin 7
Pin 6	Pin 6
Pin 7	Pin 4
Pin 8	Pin 5
Pin 9 is not used	

The total cost is less than £6. Just plug into serial port 1 and away you go!

Raied Khatab,
Dundee

Thanks, Raied, these sort of things are always well worth knowing. We cannot guarantee whether the connections outlined are specific to a particular modem but they should, in theory, work with any modem. Best check out the pin configuration of your modem with the 850 interface manual if you are unsure.

JUST THE BEST

I have been reading your magazine since Issue 9 and have looked forward to every issue since then. I have especially enjoyed the Adventure Column by Garry Francis. Please could you inform me what has happened to him as I have not seen his column recently.

I have owned an Atari 8-bit since 1981 and agree that it is the best 8-bit machine around for its sound and graphics capabilities. Because of this I am very interested in the forthcoming game from Harlequin, SHADOW OF THE BEAST, advertised in your June/July issue. I have got this games on the only format that it is available for at present (yes, I have also got an A*i*a!!) and think that the game is superb. I know the capabilities of the 800XL and think the game would be ideal for it. Let's hope that Harlequin do an excellent job of it and, if so, I'll even purchase two copies of it to encourage Harlequin to produce more games for this excellent machine.

Keep up the good work on the magazine (every issue gets better and better) and long live the Atari 8-bit!

Asad Sheikh
Birmingham

Garry Francis won the Australian National Lottery and, after failing an audition for Neighbours, now lives on his own private island on the Great Barrier Reef with his Atari and ten thousand cans of Castlemaine XXXX.

DISK DRIVE

I would like to know where the disk drive control registers are and how to use them on a 1050 disk drive without the U.S. Doubler.

John Booth,
Leicestershire

Come on then, all you technical guys, how about a nice in depth article on disk drives?

DILEMMA

Dave Hitchens' strategic platform game for 1 or 2 players - think before you move!

Dilemma is a platform game with a difference. There's no clock to hurry your progress, no monsters chasing you down dark alleys, in fact no urgency whatsoever. Just sit back, relax and give the grey matter a little exercise instead of the trigger finger.

In essence, Dilemma is a game of strategy in which you work your way up the platforms collecting goodies en route according to certain rules easily assimilated during a practice round. One or two players can take part using joysticks.

LET'S PLAY

After the initialising phase, enter the players' names and the difficulty level to bring up the main screen. Players move in turn, selecting from the available dice which are rethrown automatically by the computer throughout the game. The difficulty level determines the number of objects you must collect from each platform. You cannot move up until you have at least this number (but see the special notes at the end).

MOVING

Choose one of the dice with the joystick, registering your selection with the trigger. If you want to change your mind press the trigger a second tine. Now move the stick in the required direction. Unless the move is an invalid one, your character will respond accordingly. You are free to move anywhere horizontally except onto your opponent's base (these are the only 'safe' areas on the playfield). Landing on an object will credit you with points according to the key values shown above each player's score. Points vary according to the type of object and position. If you land on your opponent you'll send him to gaol. Landing on a trap will send you to gaol.

CHANGING FLOORS

The number of items collected is depicted on each player's base. Up to nine are shown although more may be acquired. Once you have enough you may change floors by pushing the joystick up or down after dice selection. Note well that the distance you travel is calculated from the player's base on the new floor, your current horizontal location being irrelevant. You may move up or down to choice but eventually one player must reach the top floor and collect the requisite number of goodies to reveal the finishing point back on level one. Once a player lands there the game is over and the winner is the one with the most points - not necessarily the person finishing the game first. Watch out for additional hazards on the return journey!

GAOL

Only one player may reside in gaol at any one time so, if your opponent is there you will not be penalised by landing on a trap. The gaol symbol near your score lights up whenever you've been nabbed. To escape you must use a die with a central pip, i.e. a one, three or five. Just choose the appropriate die in the normal way and you'll automatically reenter the playfield. If no suitable dice are available you must forfeit a turn by pressing the spacebar. This is the only occasion when you are allowed to miss a turn.

SCORING

Objects in short supply carry the highest points but all increase in value as you move up. Points shown on the screen above the scores refer to the objects on the floor your man is currently standing on. Above platform five are two further values (for each player). The one next to the gaol symbol shows the points forfeited if your man ends up in gaol. The other value is given if you're lucky enough to collect the last item on that particular level. Both values change as with the objects.

SPECIAL CASES

In certain cases it isn't necessary to collect the minimum number of items per level before changing floors. If there are fewer than three objects remaining on your level you are free to move vertically if you wish. Additionally, once the finishing point is displayed, both players may move freely anywhere on the playfield.

OPTIONS

A number of options are available during play. To abort a game press the START key. If you just want to change the difficulty level keep the START key depressed until the title page appears, this saves typing in the player's names each time. This also applies when restarting from the end of a current game.

As a reminder of the difficulty you are on see the top centre of the playfield screen. Occasionally your character will obscure desired screen information - pressing the OPTION key will temporarily remove him. Finally, if you find the platform colours not to your liking, the SELECT key will randomly change them. Note that these options are unavailable during dice throws.

DILEMMA

STRATEGY

Strategy plays an important part in the game. Because both players share the same set of dice it is vital to check your opponent's possible moves as well as your own since it is often the case that a relatively low scoring move on your part will force your opponent into an unfavourable position. The name of the game will be found to be quite appropriate after one or two moves! Different tactics are required for the various difficulty levels - level eight is not necessarily tougher than level one but it plays differently.

TYPING IT IN

I hope that the length of the listing will not deter readers from exercising their typing fingers. Use should be made of the brilliant full screen editing facilities of the Atari when entering similar lines (don't forget to change the line numbers!) whilst the use of TYPO III will take care of any errors. Breaking the job into two or three sittings will also reduce fatigue but don't forget to save a couple of completed copies before RUNning.

Dilemma requires a minimum of 48k RAM and was initially envisaged as a two player game. Anyonê not requiring the solo version can save typing by omitting the routines in lines 50 - 98, 375 - 470 and 910 - 960 but do not enter the character's names when starting a game. If your name happens to be Bill or Ben just add a full stop after it to avoid confusing them!

The solo version proved quite challenging and Bill and Ben perform reasonably intelligently following a set of priorities which I will leave for you to discover for yourselves. They will be most easily discerned if you have the two characters play themselves and will also illustrate the way the game proceeds. Note that none of the 'options' are available whilst Bill or Ben is in charge - you may select any difficulty but will have to wait for a game to end (or press RESET) to call a halt. A player may set different challenges - highest winning score, highest differential or least moves. All are displayed on the final screen together with a reminder of the difficulty level.

ABOUT THE PROGRAMMING

There isn't space here to delve deeply into programming aspects but the display is basically an expanded mix of Graphics 1 and 2 and Antic 4 with 7 DLI's permitting multiple use of the PMG system. Each character is composed of 2 players (or sprites) animated in a machine code loop featuring variable delay to simulate gravity effect. By keeping subroutines and the solo logic loop in early numbered BASIC lines, 'thinking time' is reduced to a minimum. Certain sound effects are achieved using filter systems built into the hardware (register 53768) and by using a separate 'sound selector' program a multitude of effects may be produced.

```
WO 1 REM ******************************
SA 2 REM *          DILEMMA           *
RU 4 REM *             by             *
FA 5 REM *       Dave Hitchens        *
OF 6 REM *----------------------------*
UM 7 REM * NEW ATARI USER - AUG 1990  *
WV 8 REM ******************************
NO 9 REM
JL 10 GOSUB 2000:GOSUB 1200:GOTO 1000
US 20 MAN(PLR)=ST+260-N0*LEV(PLR)+19*PLR:
   ST(PLR)=MAN(PLR)
DW 21 POSITION O+18*PLR,Z+I:? GAOL$(Z*LEV
   (PLR)+I,Z*LEV(PLR)+Z)
RP 22 POSITION 23+12*PLR,Z+I:? BN$(Z*LEV(
   PLR)+I,Z*LEV(PLR)+Z)
SU 23 POSITION N26-X+H*PLR,H+I:? LEV$(J*L
   EV(PLR)+I,J*LEV(PLR)+J):? SH$
AA 24 RETURN
OY 25 FOR L=I TO SC:SOUND O,X+I+6*PLR,H+Z
   ,H+X:SC(PLR)=SC(PLR)+I:POSITION 22+17*
   PLR-(SC(PLR)>H-I)-(SC(PLR)>99),H+Z
DK 26 ? SC(PLR):SOUND O,O,O,O:GOSUB N4:NE
   XT L
AG 27 RETURN
RK 30 IF LEV>H-I THEN 33
PP 31 POKE ST(PLR),J+J+LEV
UB 32 FOR N=H+X TO O STEP -I/Z:SOUND O,H*
   X+(H-LEV)*H,N,N:NEXT N
ZZ 33 RETURN
CS 35 POKE PM+N26+N26,N35*Z+96*PLR:FOR N=
   -H*Z TO H*Z:SOUND O,ABS(N)+H+H,H+Z,J:N
   EXT N:SOUND O,O,O,O:GOSUB X*X
XJ 36 POKE PM+52,O:RETURN
QD 40 POKE 142*P+X+Z+N35*PLR,D:POKE 142*P
   +23+N35*PLR,DT:A=USR(142*P+N35*PLR)
NV 42 POKE PM+432,74+Z*PLR:POKE PM+445,20
   5-176*PLR:RETURN
PA 45 POKE N1,J*J:POKE N1+I,O:POKE N2,P-I
   :POKE 1737,X+I+126*PLR+52*(VERT=-I):A=
   USR(1731,O):POKE N2,H*H
AM 49 RETURN
AD 50 IF N=I OR N=Z+I OR N=X THEN D=N:C=C
   +I
ZX 51 RETURN
CZ 55 IF N=O THEN RETURN
TP 56 IF A+T+N=MAN(I-PLR) THEN D=N:DT=I:C
   =C+I
VT 57 IF A+T-N=MAN(I-PLR) THEN D=N:DT=-I:
   C=C+I
AL 58 RETURN
CQ 60 IF N=O THEN RETURN
NE 61 IF PEEK(A+T+N)>N26 THEN D=N:DT=I:C=
   C+I
NZ 62 IF PEEK(A+T-N)>N26 THEN D=N:DT=-I:C
   =C+I
AC 63 RETURN
DA 65 IF N=O THEN RETURN
AS 66 IF PEEK(A+T+N)=Q3 THEN D=N:DT=I:C=C
   +I
ZU 67 IF PEEK(A+T-N)=Q3 THEN D=N:DT=-I:C=
   C+I
AM 68 RETURN
CR 70 IF N=O THEN RETURN
VD 71 IF PR>O THEN GOSUB 95:GOSUB 97:RETU
   RN
SR 72 GOSUB 97:GOSUB 95:RETURN
DB 75 IF N=O THEN RETURN
NB 76 IF A+N=ST+269 THEN D=N:DT=I:C=C+I
ER 77 IF A-N=ST+269 THEN D=N:DT=-I:C=C+I
AN 78 RETURN
PO 80 C=O:N=D:GOSUB L:RETURN
AX 81 C=O:N=D1:GOSUB L:N=D2:GOSUB L:N=D3:
   GOSUB L:RETURN
RB 85 T=ST+N0*(Z+Z-LEV(PLR)):A1=O:A2=O
WA 86 FOR N=T+21 TO T+29
IB 87 IF PEEK(N)>N26 THEN A1=A1+I+(PEEK(N
   )=71)
LF 88 NEXT N
WE 89 FOR N=T+30 TO T+38
JP 90 IF PEEK(N)>N26 THEN A2=A2+I+(PEEK(N
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```
   )=71)
KS 91 NEXT N
WS 92 PR=(A1-A2):RETURN
TD 95 IF A+T+N<ST(PLR)+T+Q1 AND A+T+N>ST(
   PLR)+T+Q2 AND (PEEK(A+T+N)<>Q OR STAT(
   I-PLR)) THEN D=N:DT=I:C=C+I
AL 96 RETURN
EG 97 IF A+T-N<ST(PLR)+T+Q1 AND A+T-N>ST(
   PLR)+T+Q2 AND (PEEK(A+T-N)<>Q OR STAT(
   I-PLR)) THEN D=N:DT=-I:C=C+I
AP 98 RETURN
DK 100 PLR=I-PLR:POKE 764,P-I:AT=0:TR=TR+
   PLR
LZ 101 POSITION N26,H+Z:? NAME$(H*PLR+I,H
   *PLR+H):POKE N3-I,65+110*PLR
DC 105 IF D1=0 AND D2=0 AND D3=0 THEN GOS
   UB 500
YZ 108 POKE 1775,N77*RND(0)+H*Z
TJ 109 D=0:IF AUTO=PLR+I OR AUTO=Z+I THEN
   374
SR 110 GOSUB 600
BY 111 IF PEEK(1676) THEN 111
PD 113 IF STAT(PLR)=I THEN FOR N=J+242*PL
   R TO 48+152*PLR STEP (X-H*PLR)/Z:SOUND
   0,N,H+Z,H+Z:POKE N3+PLR,N:NEXT N
XY 114 IF STAT(PLR)=I THEN SOUND 0,0,0,0:
   STAT(PLR)=0:POKE 53255,0:GOTO 250
AZ 117 IF D4>0 THEN D=N35-I:DT=51:POKE N1
   +I,I:GOSUB J*X:GOTO 120
DE 118 D=0:DT=17:POKE N1+I,P-I:GOSUB J*X
JM 120 IF VERT THEN GOSUB 300
YC 135 POKE N1,X*X:POKE 1617,ABS(D4):A=US
   R(143*P+126*PLR)
WP 140 MAN(PLR)=C
BZ 150 IF MAN(PLR)=MAN(I-PLR) THEN GOSUB
   N35*H:GOTO 250
BN 155 IF FIN AND C=ST+269 THEN 3000
JV 160 IF PEEK(C)=N8 THEN SC=LEV(PLR)+I
ZN 170 IF PEEK(C)=N9 THEN SC=Z*(LEV(PLR)+
   I)+I
FV 180 IF PEEK(C)=71 THEN SC=3*(LEV(PLR)+
   I)+Z+I
CF 182 IF PEEK(C)=X+I AND STAT(I-PLR)<>I
   THEN PLR=I-PLR:GOSUB N35*H:PLR=I-PLR:G
   OTO 250
LN 185 IF PEEK(C)<N35 THEN 250
QT 187 POKE C,0:FOR N=H+X TO 0 STEP -I/Z:
   SOUND 0,SC*N,H+Z,N:NEXT N
UN 190 GOSUB X*X:GAIN(PLR,LEV(PLR))=GAIN(
   PLR,LEV(PLR))+I:LEV=GAIN(PLR,LEV(PLR))
   :GOSUB N35-X
ON 195 OBJ(LEV(PLR))=OBJ(LEV(PLR))-I
JH 200 IF LEV>DIFF-I OR OBJ(LEV(PLR))<Z+I
   THEN VERT(PLR,LEV(PLR))=I
CX 205 IF OBJ(LEV(PLR))=0 THEN SC=(LEV(PL
   R)+I)*3+X:GOSUB N4:GOSUB N35
AQ 210 IF (VERT(PLR,Z+Z) OR OBJ(Z+Z)<Z+I)
   AND FIN=0 THEN FIN=I:POKE PM+52,X+I:F
   OR N=0 TO 120:POKE 53254,N:NEXT N:GOSU
   B 800
XC 250 D=68:DT=85:GOSUB J*X:GOTO H*H
JZ 300 N=ABS(MAN(PLR)-ST(PLR)):IF N=0 THE
   N 308
AG 305 POKE N2,H*X:POKE N1+I,P-I-254*PLR:
   POKE 1617,N:A=USR(143*P+126*PLR)
TE 308 POKE N2,200
XA 310 POKE N1,P/Z:POKE N1+I,0:POKE 1678,
   32:POKE 1737,X+I+126*PLR+52*(VERT=-I):
   SOUND 0,H-3*VERT,Z+Z,J
LO 315 POKE 28,I-FIN:A=USR(1731,X-LEV(PLR
   )+(LEV(PLR)=Z+Z))
EW 320 SOUND 0,0,0,0:LEV(PLR)=LEV(PLR)+VE
   RT:GOSUB H*Z
OL 330 POKE N1+I,I+254*PLR:C=MAN(PLR)+D4:
   POKE N2,H*H
ZH 340 RETURN
JN 350 FOR N=PEEK(N3+I-PLR) TO 240-232*PL
   R STEP X-H*PLR:SOUND 0,N,H,H+Z:POKE N3
   +I-PLR,N:NEXT N:SOUND 0,0,0,0
UI 360 SC=(LEV(PLR)+I)*3+I:POKE 53255,202
   -152*PLR:GOSUB X*X:STAT(I-PLR)=I:MAN(I
   -PLR)=ST(I-PLR)
MX 365 POKE N1+I,0:POKE 1617,H:POKE N2,X*
   J:A=USR(143*P+126*(PLR)):POKE 1676,H
UM 370 POKE N2,H*H:RETURN
XG 373 REM AUTO
NL 374 IF PEEK(1676) THEN 374
JB 375 LM=X:FOR N=Z+Z TO 0 STEP -I:IF OBJ
   (N)<>0 THEN LM=N:N=0
IX 376 NEXT N
VD 377 Q1=19:Q2=-I:IF PLR THEN Q1=I:Q2=-1
   9
HO 378 PR=0:IF OBJ(LEV(PLR))<J THEN GOSUB
    85
ZG 380 AT=I:GOSUB 618:N6=81:U=0:IF STAT(P
   LR)=0 THEN 383
QA 381 L=N0-H:GOSUB N6:IF C THEN GOTO N7
LB 382 POKE 764,I:GOTO 950
DL 383 IF FIN AND LEV(PLR)=0 AND SC(PLR)>
   SC(I-PLR) THEN U=I:L=75:VERT=0:A=MAN(P
   LR):GOSUB N6:IF C THEN GOTO N7
HN 384 IF MAN(I-PLR)=ST(I-PLR) THEN 389
UQ 385 VERT=0:T=0:L=N0-X:A=MAN(PLR):GOSUB
    N6:IF C THEN GOTO N7
ZK 386 IF VERT(PLR,LEV(PLR))=0 THEN 389
IE 387 T=-N0:VERT=I:A=ST(PLR):GOSUB N6:IF
    C THEN GOTO N7
VC 388 T=N0:VERT=-I:GOSUB N6:IF C THEN GO
   TO N7
BP 389 IF FIN AND LEV(I-PLR)=0 AND SC(I-P
   LR)>SC(PLR) THEN L=75:VERT=0:A=MAN(I-P
   LR):GOSUB N6:IF C=I THEN N6=J*H
RR 390 IF STAT(I-PLR)=0 THEN 392
WA 391 L=N0-H:GOSUB N6:IF C=I THEN N6=J*H
XQ 392 VERT=0:T=0:L=N0:IF OBJ(LEV(PLR))<>
   I THEN 394
DR 393 A=MAN(PLR):GOSUB N6:IF C THEN GOTO
    N7
YH 394 A=ST(PLR):IF VERT(PLR,LEV(PLR))=0
   THEN 400
MT 395 IF LEV(PLR)=Z+Z THEN 397
IR 396 IF OBJ(LEV(PLR)+I)=I THEN T=-N0:VE
   RT=I:GOSUB N6:IF C THEN GOTO N7
KT 397 IF LEV(PLR)=0 THEN 400
CN 398 IF OBJ(LEV(PLR)-I)=I THEN T=N0:VER
   T=-I:GOSUB N6:IF C THEN GOTO N7
YV 400 VERT=0:T=0:L=N0:IF OBJ(LEV(I-PLR))
   <>I THEN 403
RE 402 A=MAN(I-PLR):GOSUB N6:IF C=I THEN
   N6=J*H
XP 403 A=ST(I-PLR):IF VERT(I-PLR,LEV(I-PL
   R))=0 THEN 410
MD 404 IF LEV(I-PLR)=Z+Z THEN 406
RC 405 IF OBJ(LEV(I-PLR)+I)=I THEN T=-N0:
   VERT=I:GOSUB N6:IF C=I THEN N6=J*H
JB 406 IF LEV(I-PLR)=0 THEN 410
LC 407 IF OBJ(LEV(I-PLR)-I)=I THEN T=N0:V
   ERT=-I:GOSUB N6:IF C=I THEN N6=J*H
PX 410 Q3=71
SD 411 VERT=0:T=0:L=N0+X:A=MAN(PLR):GOSUB
    N6:IF C THEN GOTO N7
KU 412 IF VERT(PLR,LEV(PLR))=0 THEN 415
TT 413 IF LEV(PLR)<>Z+Z THEN T=-N0:VERT=I
   :A=ST(PLR):GOSUB N6:IF C THEN GOTO N7
PL 414 IF LEV(PLR)<>0 THEN T=N0:VERT=-I:A
   =ST(PLR):GOSUB N6:IF C THEN GOTO N7
FL 415 IF Q3=N9 OR Q3=N8 OR STAT(I-PLR) T
   HEN 420
KH 416 VERT=0:T=0:L=N0+X:A=MAN(I-PLR):GOS
   UB N6:IF C=I THEN N6=J*H
BM 417 IF VERT(I-PLR,LEV(I-PLR))=0 THEN 4
   20
PP 418 T=-N0:VERT=I:A=ST(I-PLR):GOSUB N6:
   IF C=I THEN N6=J*H
JE 419 T=N0:VERT=-I:GOSUB N6:IF C=I THEN
   N6=J*H
OI 420 IF Q3=N9 OR Q3=N8 THEN GOTO 451+(Q
   3=N8)
NN 421 IF LEV(PLR)=Z+Z OR VERT(PLR,LEV(PL
   R))=0 OR (FIN AND SC(PLR)>SC(I-PLR)) O
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    R LEV(PLR)>=LM THEN 430
PU 422 L=N0+X:T=-N0:VERT=I:A=ST(PLR):Q3=N
    9:GOSUB N6:IF C THEN GOTO N7
FX 423 Q3=N8:GOSUB N6:IF C THEN GOTO N7
WS 424 Q=X+I:L=N0+H:GOSUB N6:IF C THEN GO
    TO N7
PJ 425 GOTO 450
IJ 430 IF LEV(PLR)>LM THEN 432
UI 431 IF LEV(PLR)=0 OR VERT(PLR,LEV(PLR)
    )=0 OR (FIN AND SC(PLR)<SC(I-PLR)) THE
    N 450
HY 432 L=N0+X:T=N0:VERT=-I:A=ST(PLR):Q3=N
    9:GOSUB N6:IF C THEN GOTO N7
FZ 433 Q3=N8:GOSUB N6:IF C THEN GOTO N7
WU 434 Q=X+I:L=N0+H:GOSUB N6:IF C THEN GO
    TO N7
DV 450 Q3=N9:GOTO 411
DP 451 Q3=N8:GOTO 411
JK 452 Q=X+I:IF U THEN PR=PLR
FT 453 VERT=0:T=0:L=N0+H:A=MAN(PLR):GOSUB
     N6:IF C THEN GOTO N7
LD 454 IF VERT(PLR,LEV(PLR))=0 THEN 460
AA 455 T=-N0:VERT=I:A=ST(PLR):IF LEV(PLR)
    <>Z+Z THEN GOSUB N6:IF C THEN GOTO N7
FN 456 T=N0:VERT=-I:IF LEV(PLR)<>0 THEN G
    OSUB N6:IF C THEN GOTO N7
VV 460 Q=H*H:PR=0:GOTO 453
PA 500 POKE 209,114:FOR T=I TO Z+I:POKE 7
    03+T,H:SOUND Z,0,0,0
LP 510 FOR N=I TO H*RND(0)+H+X
HV 520 D4=INT(6*RND(0))
XY 530 SOUND 0,D4+X,H,H+X:POSITION T*J+T,
    0:SOUND 0,0,0,0
JL 540 ? DC$(D4*17+I,D4*17+17)
HP 550 NEXT N:GOSUB N4:ON T GOTO 551,552,
    553
MI 551 D1=D4+I:NEXT T
MR 552 D2=D4+I:NEXT T
LA 553 D3=D4+I:POKE 209,N9:POKE N77,0:RET
    URN
FJ 600 A=STICK(PLR):L=(A=X+Z AND DIE<158)
    :T=(A=H+I AND DIE>86)
IX 605 IF STAT(PLR)=I AND PEEK(764)<P-I T
    HEN T=P-I:GOSUB N4-H:POP :GOTO H*H
NB 610 SOUND 0,Z+Z,J,15*(L+T):DIE=DIE+36*
    L-36*T
TY 615 DT=PEEK(53279):IF DT=X THEN POKE 2
    8,0:A=USR(1752):T=I:GOSUB N4-H
BO 616 IF DT=X+I THEN POP :GOTO 3500
CH 617 IF DT=Z+I THEN DT=PEEK(N3+PLR):POK
    E N3+PLR,0:GOSUB N4+H:POKE N3+PLR,DT
GN 618 IF OBJ(LEV(PLR))<Z+I THEN VERT(PLR
    ,LEV(PLR))=I
ZF 619 IF AT THEN RETURN
TM 620 POKE 1581,DIE:SOUND 0,0,0,0
VR 625 D=D+I:IF D>H*H*RND(0)*Z THEN D=0:P
    OKE 1676,X*RND(0)
ND 630 IF STRIG(PLR) THEN GOSUB 790:GOTO
    600
NT 640 IF DIE=86 THEN D4=D1:Q=0
OD 641 IF DIE=122 THEN D4=D2:Q=I
MX 642 IF DIE=158 THEN D4=D3:Q=Z
WX 650 IF D4=0 THEN 600
EM 660 POKE PM+280,H*Z:T=X+I:GOSUB N4-H
IG 670 A=STICK(PLR)
ZU 675 IF STRIG(PLR) THEN 690
QF 680 POKE PM+280,209:T=90:GOSUB N4-H:GO
    TO 600
CQ 690 VERT=(A=14)-(A=13)
RA 695 IF STAT(PLR)=I AND D4<>I AND D4<>Z
    +I AND D4<>X THEN 785
MV 700 IF (LEV(PLR)=0 AND VERT=-I) OR (LE
    V(PLR)=Z+Z AND VERT=I) THEN 785
XG 705 IF VERT AND VERT(PLR,LEV(PLR)) THE
    N 720
DM 708 IF VERT THEN 785
MS 709 IF STAT(PLR)=I THEN 727
IB 710 IF A<>X+Z AND A<>H+I THEN 670
LG 720 IF VERT AND PLR THEN D4=-D4
ZZ 721 IF VERT THEN 727
DW 723 IF A=H+I THEN D4=-D4
VQ 724 C=MAN(PLR)+D4
PP 725 IF PLR=0 AND (C<ST(0) OR C>ST(0)+H
    +J) THEN 785
HJ 726 IF PLR=I AND (C>ST(I) OR C<ST(I)-1
    8) THEN 785
ER 727 FOR N=H+X TO 0 STEP -X:SOUND 0,N,H
    +Z,N:NEXT N:IF Q=0 THEN D1=0
KA 730 IF Q=I THEN D2=0
RI 740 IF Q=Z THEN D3=0
HF 770 POKE 704+Q,X+I:POKE PM+280,209
ZT 780 RETURN
EL 785 POSITION I,H+Z:? " move not allowe
    d":GOSUB N4+H:GOSUB 23:GOTO 680
IW 790 N=(PEEK(H+H)>P/Z):POKE PM+436,Z+Z+
    6*N:POKE PM+442,183-12*N:RETURN
OH 800 DT=ST-X*J:GOSUB 8160
TV 810 FOR Q=I TO X:GOSUB 894:DT=DT+N0:RE
    STORE 880+FIN
FJ 820 FOR C=I+FIN TO Z+Z-FIN:READ D,L:FO
    R T=I TO D
JY 830 N=INT(18*RND(0))+I:IF PEEK(DT+N)<>
    0 THEN 830
CY 850 POKE DT+N,L:NEXT T:NEXT C:GOSUB N4
    +H:NEXT Q
UW 880 DATA 2,71,4,136,6,201,1,6
JR 881 DATA 2,6,3,6
MP 890 POKE PM+N26+N26,0
LX 891 IF FIN THEN FOR N=0 TO Z+Z:VERT(I-
    PLR,N)=I:NEXT N
LT 892 GOSUB 900:RETURN
KJ 894 RESTORE 895:POKE 182,Q-I:READ D:PO
    KE N5,D:RETURN
KL 895 DATA 57,63,76,152,230
ZF 900 FOR N=0 TO Z+I:SOUND N,0,0,0:NEXT
    N:RETURN
VN 930 IF D=D1 THEN DIE=86:D4=D1:Q=0
YM 931 IF D=D2 THEN DIE=122:D4=D2:Q=I
EP 932 IF D=D3 THEN DIE=158:D4=D3:Q=Z
DI 933 POKE 1581,DIE:GOSUB 727
JT 935 IF DT=-I THEN D4=-D4
KO 940 C=MAN(PLR)+D4:GOTO 111
NJ 950 T=P-I:GOSUB N4-H:GOTO H*H
LR 1000 POKE 756,CHB:ST=PEEK(88)+P*PEEK(8
    9)+160
EV 1010 POKE 559,0:POKE 54286,192:A=USR(1
    582):POKE 53277,Z+I
ZL 1020 POKE N5,N77:GOSUB 8000:? "↰":POKE
     559,0
GB 1030 RESTORE 1070:FIN=0:TR=0
ZX 1040 FOR PLR=0 TO I:LEV(PLR)=0:GOSUB H
    *Z:SC(PLR)=0:STAT(PLR)=0:POKE 143*P+55
    +126*PLR,J
LW 1045 FOR N=0 TO Z+Z:GAIN(PLR,N)=0:VERT
    (PLR,N)=0:OBJ(N)=H+Z:NEXT N:NEXT PLR
JJ 1060 FOR C=I TO X:READ D,DT,L:FOR T=0
    TO 240 STEP N0:FOR N=0 TO 19 STEP DT:P
    OKE ST+D+N+T,L:NEXT N:NEXT T:NEXT C
SC 1070 DATA 0,1,4,40,1,3,20,19,16,0,19,0
    ,40,19,0
WR 1100 FOR N=I TO Z:READ D,DT:POKE ST-D,
    DT:NEXT N
LJ 1110 DATA 38,5,23,5
ML 1115 N=114:POKE 704,N:POKE 705,N:POKE
    706,N:POKE 710,N35+I:POKE 712,N:POKE 2
    09,N:POKE 1560,X+I:POKE 1562,X+I
SD 1118 POKE N3-Z,0:POKE 1574,216:POKE N3
    -I,0:POKE PM+112,48:POKE PM+117,184:PO
    KE PM+144,I:POKE N2,H*H
KG 1120 POKE 53252,48:POKE 53253,200:DIE=
    122:POKE 559,62
YP 1130 POSITION H*Z,H+Z:? "000▸▸◂◂000":P
    OSITION N35-X-(DIFF/Z),Z+I:FOR N=I TO
    DIFF:? "*";:NEXT N
RU 1150 GOSUB 800:GOSUB 500:PLR=(PEEK(H+H
    )>P/Z):GOTO H*H
TX 1200 ? "↓↓↓↓→→    CHARACTERS":POKE N5,N
    35+Z
XU 1201 RESTORE 1203:POKE 559,N35-I:FOR N
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continued ☛

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   =0 TO H+J:READ DT:FOR T=0 TO X+Z:READ
   D:POKE CH+T+J*DT,D:NEXT T:NEXT N
WV 1203 DATA 3,24,126,255,0,0,0,0,0
JA 1204 DATA 4,0,0,0,0,0,0,204,51
SZ 1205 DATA 5,255,165,165,255,165,165,16
   5,255
AI 1206 DATA 6,0,0,36,24,24,36,0,0
BS 1207 DATA 7,0,4,8,60,126,126,60,0
KH 1208 DATA 8,0,24,36,102,36,24,60,0
KL 1209 DATA 9,0,66,66,36,36,24,60,0
NP 1210 DATA 10,0,0,0,24,60,24,0,0
ZB 1211 DATA 11,0,0,60,60,60,60,0,0
WF 1216 DATA 16,60,102,102,102,102,102,60
   ,0
FF 1217 DATA 17,24,120,24,24,24,60,126,0
UG 1218 DATA 18,60,102,12,24,48,96,126,0
XM 1219 DATA 19,60,102,6,28,6,102,60,0
ZO 1220 DATA 20,28,60,108,236,254,12,12,0
PN 1221 DATA 21,126,96,124,6,6,102,60,0
QC 1222 DATA 22,12,24,48,124,102,102,60,0
AU 1223 DATA 23,126,102,6,12,24,48,96,0
CN 1224 DATA 24,60,102,102,60,102,102,60,
   0
EV 1225 DATA 25,60,102,102,62,12,24,48,0
LF 1500 RESTORE 1520
GC 1510 FOR L=I TO X-I:READ D,DT,C:FOR N=
   D TO DT:POKE PM+1024+N,C:POKE PM+1280+
   N,C:POKE PM+1536+N,C:NEXT N:NEXT L
OC 1520 DATA 11,32,255,8,10,126,33,35,126
   ,232,247,252
TP 1530 FOR N=N35+I TO N35+J:READ D:POKE
   PM+1792+N,D:NEXT N
JU 1550 DATA 24,60,126,255,60,60,60,60
AJ 1560 POKE 53260,P-I
ID 1570 FOR T=0 TO Z+Z:FOR N=0 TO J+J STE
   P Z:POKE PM+826+32*T+N,H+X:NEXT N
VX 1575 FOR N=-Z TO J+H STEP H*Z:POKE PM+
   826+32*T+N,H-I:NEXT N:NEXT T
YZ 1580 FOR N=232 TO 247:READ D:POKE PM+1
   536+N,D:NEXT N:DATA 0,0,0,0,0,129,195,
   231,231,195,129,0,0,0,0,0
EY 1585 FOR N=187 TO 200:READ D:POKE PM+7
   68+N,D:NEXT N:FOR N=223 TO 228:POKE PM
   +768+N,P/Z:NEXT N:POKE PM+993,0
NH 1587 DATA 48,63,48,47,32,63,48,63,48,4
   7,32,47,32,47
FF 1595 ? "↓↓         SPRITES":POKE N5,94
GV 1600 FOR N=0 TO 101:READ D:POKE 141*P+
   N,D:NEXT N
DG 1610 DATA 8,28,122,0,0,0,0,0,0,0,0,24,
   24,24,24,24,0,0,0,0,24,60,92,94,254,10
   8,28,56,128,64,36,2,32,108
SC 1620 DATA 32,112,252,0,0,0,0,0,0,0,0,4
   8,48,48,48,48,0,0,0,0,48,120,116,244,2
   54,108,112,56,2,4,72,128,8,108
AY 1630 DATA 24,126,0,0,0,0,0,0,0,0,60,60
   ,60,60,0,0,0,0,0,24,60,90,219,126,90,1
   02,60,0,66,129,0,36,36,102
PI 1640 FOR N=0 TO 68:READ D:POKE 142*P+N
   ,D:NEXT N
DX 1645 ? "→↓↓←←ANIMATION"
BL 1650 DATA 104,162,0,172,74,6,189,0,141
   ,145,203,200,232,224,17,208,245
ZG 1655 DATA 162,0,172,74,6,189,17,141,14
   5,205,200,232,224,17,208,245,96,0
UN 1660 DATA 104,162,0,172,76,6,189,34,14
   1,145,207,200,232,224,17,208,245
QP 1665 DATA 162,0,172,76,6,189,51,141,14
   5,29,200,232,224,17,208,245,96
VA 1690 FOR N=0 TO P-J:READ D:POKE 143*P+
   N,D:NEXT N
KZ 1700 DATA 104,169,162,141,3,210,162,18
   ,172,74,6,177,203,72,177,205,136,145,2
   05,104,145,203,200,200,202,208,240
YY 1705 DATA 206,74,6,206,75,6,32,84,6,32
   ,105,6,173,142,6,240,1,96,32,144,6,238
   ,80,6,173,80,6,201,8,208,204
ZV 1710 DATA 162,18,172,75,6,177,203,72,1
   77,205,200,145,205,104,145,203,136,136
   ,202,208,240
MW 1715 DATA 238,74,6,238,75,6,32,84,6,32
   ,105,6,173,142,6,240,1,96,32,156,6,206
   ,80,6,173,80,6,208,206
RU 1720 DATA 206,81,6,173,81,6,141,82,6,2
   08,143,141,3,210,96,0,0,0
QY 1725 DATA 104,169,162,141,3,210,162,18
   ,172,76,6,177,207,72,177,29,136,145,29
   ,104,145,207,200,200,202,208,240
PU 1730 DATA 206,76,6,206,77,6,32,119,6,3
   2,105,6,173,142,6,240,1,96,32,144,6,23
   8,80,6,173,80,6,201,8,208,204
SW 1735 DATA 162,18,172,77,6,177,207,72,1
   77,29,200,145,29,104,145,207,136,136,2
   02,208,240
SN 1740 DATA 238,76,6,238,77,6,32,119,6,3
   2,105,6,173,142,6,240,1,96,32,156,6,20
   6,80,6,173,80,6,208,206
AI 1745 DATA 206,81,6,173,81,6,141,82,6,2
   08,143,141,3,210,96
ZS 1750 FOR N=I TO N35:READ D:POKE 1023+N
   ,D:NEXT N
HR 1755 DATA 104,173,11,212,229,20,10,141
   ,10,212,141,23,208,74,74,74,141,24,208
   ,101,20,141,26,208,173,31,208
XC 1760 DATA 201,7,144,3,76,1,4,96
BO 1790 RETURN
EC 2000 RESTORE 2005:READ O,I,Z,X,J,H,P,N
   26,N35,N77,N1,N2,N3,N4,N5,N7,N8,N9,N0
PO 2005 DATA 0,1,2,5,8,10,256,26,35,77,16
   14,1645,1595,4010,53764,930,201,136,60
OD 2010 GRAPHICS O:POKE 710,O:POKE 752,I:
   MEM=PEEK(106):CHB=MEM-J:CH=CHB*P:PMB=C
   HB-J:PM=PMB*P:SOUND O,O,O,O
PL 2011 ? "→→↓↓↓↓↓←INITIALISING":SOUND O,
   192,H,X:SOUND Z,N77-Z,H+Z,X-I:POKE N5+
   Z+Z,X
MD 2015 DIM BN$(H),CH$(N35-Z):CH$="hh.Lh.
   Kh.Nh.Mhh ♥1K.H/ PvfLfNJPp♦":A=USR(ADR
   (CH$),57344,CH,Z+Z)
XM 2020 DIM DC$(102),LEV$(X*J),GAOL$(H),V
   ERT(I,X-I),GAIN(I,X-I),NAM1$(H-I),NAM2
   $(H-I),NAME$(X*X),MAN(I),ST(I),SC(I)
OS 2030 DC$="    ↓←←← ■ ↓←←←     ■ ↓←←←    ↓
   ←←← ■  ■ ↓←←← ■ ↓←←← ■ ■ ■↓←←←    ↓←←←■
    ■■ ■↓←←← ■ ↓←←←■ ■■ ■↓←←←■ ■↓←←←■ ■"
QU 2040 LEV$="01:03:0602:05:0903:07:1204:
   09:1505:11:18":GAOL$="0407101316":BN$=
   "0811141720"
YC 2050 DIM STAT(I),OBJ(X),LEV(I),BL$(H),
   SH$(H+H):BL$="          ":SH$="■ ■  ■
    \ ■  ■  \ ■"
OD 2060 REM DLI
CF 2070 FOR N=O TO 169:READ D:POKE PM+N,D
   :NEXT N
JF 2075 DATA 72,138,72,173,34,6,240,22,20
   1,1,240,39,201,6,240,82
TR 2080 DATA 174,35,6,189,37,6,141,22,208
   ,238,35,6,208,65
TO 2085 DATA 169,0,162,4,157,7,208,202,20
   8,250,232,142,27,208,169,148,141,25,20
   8,208,44
FT 2090 DATA 169,0,162,250,141,10,212,141
   ,26,208,142,20,208,142,21,208,169,70,1
   41,18,208,169,166,141,19,208
LY 2095 DATA 173,59,6,141,0,208,141,2,208
   ,173,60,6,141,1,208,141,3,208,24,144,6
   5
IS 2100 DATA 169,232,162,4,141,10,212,142
   ,22,208,141,26,208,169,48,141,0,208,16
   9,184,141,1,208,173,58,6,141,2,208
SR 2105 DATA 169,0,141,27,208,141,35,6,16
   9,3,141,8,208,141,9,208,169,1,141,10,2
   08
JU 2110 DATA 169,64,141,18,208,169,160,14
   1,19,208,169,134,141,20,208
MB 2115 DATA 238,34,6,104,170,104,64
UF 2130 POKE P*Z,0:POKE P*Z+I,PMB
OR 2135 ? "→→↓↓DLI // VBI"
QR 2140 REM VBI
CY 2150 FOR N=P TO 485:READ D:POKE PM+N,D
```

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```
   :NEXT N
HJ 2152 DATA 216,24,169,82,141,0,208,169,
   118,141,1,208,169,154,141,2,208,173,45
   ,6,141,3,208,165,209,141,21,208
CG 2154 DATA 169,0,141,11,208,141,34,6,16
   9,1,141,8,208,141,9,208,141,10,208,169
   ,4,141,27,208
ZI 2156 DATA 173,61,6,24,105,16,141,61,6,
   206,73,6,173,73,6,208,35,173,62,6,201,
   110,208,3,32,64,6,173,62,6,201,98
UZ 2158 DATA 208,3,32,64,6,173,62,6,24,10
   9,63,6,141,62,6,169,3,141,73,6
JE 2160 DATA 173,57,6,240,17,165,20,141,3
   8,6,173,61,6,141,23,208,173,62,6,141,2
   5,208
XZ 2162 DATA 162,0,173,82,6,208,7,173,83,
   6,208,15,240,22,169,8,141,6,210,169,15
   ,141,83,6,142,82,6,173,83,6,56,233,5
AP 2164 DATA 141,83,6,141,7,210
FI 2166 DATA 173,140,6,240,51,206,169,6,2
   08,46,173,74,6,24,105,4,168,174,170,6,
   189,183,6,145,205,238,170,6,200
DQ 2168 DATA 206,168,6,208,239,169,3,141,
   168,6,169,4,141,169,6,224,11,208,8,169
   ,0,141,170,6,206,140,6
RM 2170 DATA 173,36,6,141,196,2,76,98,228
SY 2178 ? "▶↓↓     - PAGE 6 ROUTINES -":PO
   KE N5,N35+Z+I
IL 2180 FOR N=1536 TO 1786:READ D:POKE N,
   D:NEXT N
JQ 2190 DATA 16,68,64,156,4,4,134,134,6,7
   ,134,6,7,134,6,7,134,6,7,134,6,7,134,1
   6,6,16,6,32,7,65,0,6,0,0,0
JM 2200 DATA 0,106,168,216,40,152,0,0,0,0
   ,122,104,162,0,160,0,169,7,32,92,228,9
   6
ZB 2205 DATA 0,0,0,0,10,104,1,173,63,6,73
   ,254,141,63,6,96,3,193,209,193,209
IZ 2210 DATA 10,0,0,1,0,0,173,74,6,74,144
   ,14,234,32,240,6,173,59,6,24,109,79,6,
   141,59,6,96
IW 2215 DATA 174,78,6,160,255,136,208,253
   ,202,208,248,96,0,0
TG 2220 DATA 173,76,6,74,144,14,234,32,24
   0,6,173,60,6,24,109,79,6,141,60,6,96
TV 2225 DATA 0,0,0,0,173,78,6,24,105,10,1
   41,78,6,96,0,0,173,78,6,56,233,10,141,
   78,6,96,0,0
AH 2230 DATA 3,3,0,0,195,0,129,66,0,0,195
   ,0,0,66,129,126,219,126,126,255,126,12
   6,219,126,90,219,126
GP 2235 DATA 104,104,104,133,31,32,6,143,
   166,31,240,3,32,219,6,206,142,6,208,24
   1,96
LG 2240 DATA 104,162,5,173,10,210,41,243,
   24,105,7,157,35,6,165,28,208,3,202,208
   ,238,96
PD 2245 DATA 0,100,173,239,6,56,237,80,6,
   141,2,210,96
FP 2280 POKE 1584,PMB+I:POKE 54279,PMB:PO
   KE 204,PMB+Z+Z:POKE 206,PMB+X+I:POKE 2
   08,PMB+X:POKE 30,PMB+X+Z
FM 2290 FOR N=I TO H:READ D,DT:POKE D,DT:
   NEXT N
OT 2300 DATA 559,0,560,0,561,6,82,0,709,1
   00,711,0,203,0,205,0,207,0,29,0
RP 2400 ? "K":RETURN
NU 3000 FOR N=H+X TO 0 STEP -I/Z:SOUND 0,
   N,J,N:SOUND I,N,H+Z,N:SOUND Z,J,0,N:PO
   KE PM+N26+N26,N*J:NEXT N
WP 3005 D=68:DT=85:GOSUB X*J:PLR=(SC(I)>S
   C(0)):POKE 1581,0:GOSUB 365
JC 3008 SOUND 0,192,H,J:SOUND I,62,H,X:SO
   UND Z,152,H+Z,J:SOUND Z+I,N77-Z,H,H:PO
   KE 53768,X+I
KO 3009 POKE N3-I,I:FOR N=N77-Z TO N35+Z
   STEP -Z/H:POKE N5+Z,N:NEXT N
BE 3010 ? "K↓↓↓       the end ▶▶▶▶   start
    to replay↓▶▶▶    THE VICTOR IS↓↓▶▶▶
      BY ";ABS(SC(0)-SC(I));" POINTS↓▶▶▶"
NN 3015 POSITION Z+I,H+I:? " IN ";TR;" TU
   RNS↓▶ ←D.I.L.E.M.M.A! ";CHR$(J+J+DIFF)
   :POSITION H+H,H+Z:? SC(PLR)
XA 3020 POSITION N26,X+Z:? NAME$(H*PLR+I,
   H*PLR+H):POKE PM+101,H+X:FOR N=0 TO Z+
   I:POKE 53252+N,0:NEXT N
LF 3040 POKE N3-Z,I:A=USR(P*Z*Z)
XF 3500 GOSUB 900:GOSUB 8160:POKE PM+N26+
   N26,J+J:FOR PLR=0 TO I
HN 3510 POKE 1678,32*LEV(PLR):VERT=-I:SOU
   ND 0,X*X,Z+Z,X:IF LEV(PLR) THEN GOSUB
   N35+H
WU 3515 NEXT PLR:FOR N=0 TO Z:POKE 704+N,
   0:NEXT N:POKE PM+101,Z+Z:POKE 1572,106
RE 3520 POKE PM+N26+N26,0:SOUND 0,192,H,X
   :SOUND Z,N35+Z,H+Z,X-I:POKE 53768,X:PO
   KE N3,X*J+J:POKE N3+I,H*H*Z:GOTO 1000
DT 4000 FOR N=H+X TO 0 STEP -I/Z:SOUND 0,
   T,H+Z,N:NEXT N:RETURN
KS 4010 FOR N=I TO H:NEXT N:RETURN
PJ 4020 FOR N=I TO H*H:NEXT N:RETURN
KX 8000 POKE 1560,Z:POKE 1562,Z:POKE 710,
   0:POKE 712,0:FOR N=0 TO Z+I:POKE 53252
   +N,0:NEXT N
PY 8005 POKE PM+112,0:POKE PM+117,0:POKE
   PM+144,Z+I:POKE N3-Z,I:POKE N3-I,0:POK
   E 209,0
LT 8008 ? "K↓           ^^^^^^^^^^^^^^^
   ^^^^^^":?
EU 8010 ? "    david hitchens":? " INVITE
   S YOU TO PLAY":? "▶▶▶←THE STRATEGY GAM
   E"
KC 8020 ? :? "     ###############       D I
     L E M M A":? "    $$$$$$$$$$$"
BC 8023 POSITION 0,H+I:? "¬▶▶     ¬↑↑↑":PO
   KE 559,62:IF PEEK(53279)=X+I THEN 8130
SY 8025 NAME$(I)=BL$:NAME$(H+I)=BL$:IF DI
   E THEN 8070
CY 8030 POKE N1,J*J:POKE 1775,N26:GOSUB N
   4+H:? "   ▶▶▶    FEATURING"
AG 8040 PLR=0:D=0:DT=17:GOSUB X*J:POKE N3
   ,218:POKE N1+I,P-I:POKE 1617,H:POKE N2
   ,X*X:POKE 143*P+55,17:A=USR(143*P)
UW 8042 D=68:DT=85:GOSUB X*J:VERT=0:POKE
   1678,X+Z:GOSUB N35+H:PLR=I:POKE N1+I,I
   :POKE 1775,N35:? "▶▶▶←bill";
EL 8050 D=34:DT=51:GOSUB X*J:POKE N3+I,N3
   5-X:POKE N1,J*J:POKE 1617,H:POKE N2,X*
   X:POKE 143*P+181,17:A=USR(143*P+126)
JM 8052 D=68:DT=85:GOSUB X*J:POKE 1678,X+
   Z:GOSUB N35+H
BG 8055 ? "    and    ben"
OE 8070 AUTO=0:POSITION N26+X,H+I:? "WHO
   WILL GUIDE BILL?▶▶ [TYPE HIS NAME FOR
   SOLO VERSION]":POKE N3-I,N26+Z
ZE 8080 POSITION N26,N26/Z:INPUT NAM1$:IF
    NAM1$="" THEN 8080
FV 8090 NAME$(X-(LEN(NAM1$)/Z),H)=NAM1$:I
   F NAM1$="BILL" THEN AUTO=AUTO+I
WH 8100 POSITION 29,H+I:? "AND WHO WILL G
   UIDE BEN?":POKE N3-I,197
UW 8105 POSITION N26,N26/Z:? BL$
OL 8110 POSITION N26,N26/Z:INPUT NAM2$:IF
    NAM2$="" THEN 8110
XE 8120 NAME$(H+X-(LEN(NAM2$)/Z),H+H)=NAM
   2$:IF NAM2$="BEN" THEN AUTO=AUTO+Z
MQ 8130 POKE N3-I,0:POKE 710,H:POSITION N
   26-X,J+X:? " TARGET NO. [1-8]"
WO 8140 CLOSE #I:OPEN #I,Z+Z,0,"K:":GET #
   1,DIFF:IF DIFF<49 OR DIFF>56 THEN 8140
VX 8150 DIFF=DIFF-48
TI 8160 SOUND 0,192,H,X-I:SOUND Z,N77-I,H
   +Z,X-Z:POKE 53768,Z+Z
AK 8200 RETURN
```

DILEMMA

THE LYNX

Ever wanted to play your favourite arcade game in the car (or a bus, or a train, or a plane)? Or under the bedclothes? Or in the toilet? Fed up with the limitations of Game and Watches? The Atari's new Lynx is just the machine for you!

It is a portable, battery-driven games console with its own built in colour screen! It really is a most amazing little device and was without a doubt the star of the recent Atari '90s Show at Hammersmith. There were eight machines for public use with continuous queues and they were selling like hotcakes at many stalls. That is also where I saw the video of the schoolkids playing it in the toilets - it is apparently not deemed suitable for British television, but you will probably see the ad at your local cinema this summer!

The Lynx is only 10.5 inches by 4.5 inches and 1.5 inches thick. The 3.5 inch display has 160 x 102 pixels, can display 16 colours from a pallette of 4096 and is backlit to give a good image in most conditions (direct bright sunlight is the worst - under the bedclothes is great!). The LCD layer is actually three times that resolution, but the front layer of triads of red, green and blue filter strips uses three black and white dots to produce one coloured dot. The result is superb and you will be amazed at the amount of detail in some of the graphics.

The main processor (affectionately known as MIKEY) is a standard 65C02 processor running at 4MHz,which controls most of the I/O, but the real star of the show is a custom built chip called SUZY.

SUZY is a 16MHz, 16-bit chip with its own maths coprocessor (for doing sums dozens of times faster than normal chips! - not usually found in home computers) whose sole job is to manage the sprites. Virtually everything you will see on a Lynx screen will be a sprite. They can be any size or shape and can move independently in any way. SUZY is half sprite-engine and half blitter; and as well as handling the shape and position of a sprite she can automatically scale it, tilt it (holding one edge steady), stretch it (holding one corner steady) or flip it. So whereas a programmer on a conventional machine who wished to display a car moving towards you would need to define numerous sprites of different sizes, on the Lynx he would define just one (the largest, with the most detail) and let SUZY do the rest!

The Lynx also features 4-channel stereo sound which is better than the standard ST - it only has a single speaker though, so you will have to plug in your "Walkman" headphones to hear it all - but at least then you won't disturb your neighbours!

The game playing controls are: a "joypad" to give 8-way directional control like a joystick - mainly activated by your left thumb, two buttons for firing or whatever (i.e. twice the versatility of a joystick), and three option buttons used for controlling startup, special functions within the game, and facilities like pausing or "flipping" - a standard function which can be invoked by a single macro in the program which turns the whole screen through 180 degrees so that left-handers can turn the Lynx round and play with ease - there are even two extra firing buttons provided for just that! There are also volume and brightness controls - the LCD quality varies depending on the angle and the lighting, but adjusting the dial will normally get you a good picture.

AND (as if that wasn't enough!) the Lynx comes equipped with a Comlynx port and cable so that you can link multiple machines together for simultaneous play. This can be used to make games like California Games (which comes free with the Lynx) a two-player game or Gauntlet III into a FOUR player game - without the usual limitation of needing all the players on the screen at once - each player sees the game from their own character's viewpoint!

Atari plan to have a game out by the end of the year which allows EIGHT players to join in!

WHAT TO PLAY

So, what about the games? So far we have:

California Games ...

- Half Pipe Skateboarding (use kick turns, aerial turns and hand plants to do stunts for points), Foot Bag (laid back juggling - score points for keeping the bag in the air while turning and jumping), BMX (complete the ridiculously bumpy course by careful steering and lots of jumping in your fastest time - and score extra for doing quadruple somersaults off cliffs along the way!), and Surfing (stay on your board and do fancy turns to score high!).

The Gates of Zendocon ...

- Over 50 levels of horizontally scrolling blast-em-up; four power-up weapons; an incredible variety of alien monsters to destroy or avoid; passwords allow you to restart at any level.

The play area is twice as high as the screen so you can fly a long way up and down as well. Try TRYX for entry to a special level - when it starts just hold down joypad right and down simultaneously so that you crash straight through the floor - enter the next gate for a full power-up and amazing graphics!

Blue Lightning ...

- arcade quality aircraft shoot-em-up (a la Afterburner) with ten different missions (e.g. destroy enemy radar, deliver documents to a hidden airstrip) - I haven't played this one yet.

Electrocop ...

- basically a horizontally scrolling shoot-em-up, but with a lot of extras - you can move backwards and forwards around the rooms as well as sideways, both within the rooms and into rooms and corridors in front of and behind you - so really it scrolls in four directions. As well as defeating the usual opponents (evil robot guardians) with various weapons, you need to use computer consoles to crack the door codes; while you are waiting you can either continue exploring or you can play arcade games on the computer console - yes, really - it has simple versions of Breakout, Asteroids and a sliding block puzzle built in! A bit baffling to start with, but very enjoyable once you get used to it.

Chips Challenge ...

- a bird's eye view of 144 2-D mazes; full of puzzles to solve involving keys, buttons, shields, bombs, traps, tanks, thieves, teleports, clone machines, toggle blocks, one way walls, secret doors, etc., and of course monsters to avoid! Great fun and excellent value if you want a rest from the endless blasting!

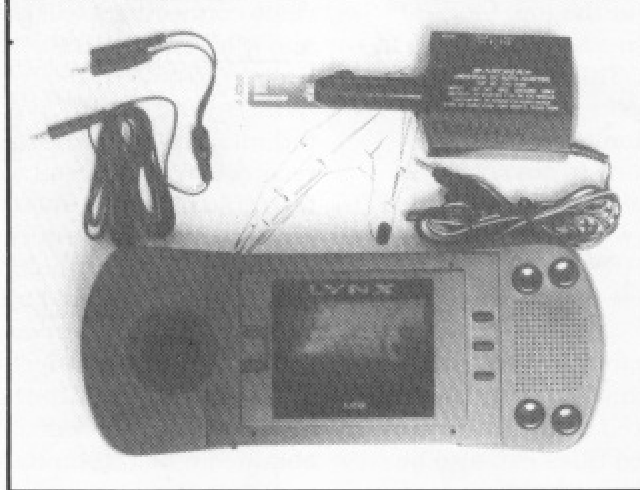
Gauntlet III ...

- for one to four players is just out (this is being written in early June!) and by the time you read this Klax and Rampage should be on the shelves. Atari plan to have at least another 35 cartridges out by Christmas! APB, Toobin', Hard Driving and Paper Boy are already on the schedule for the near future.

The first development machines have just reached this side of the Atlantic so we should be getting some British games soon as well. The full development system is extremely powerful as it has superb macro libraries to help define sprites and drive SUZY as well as a hardware simulator of the Lynx so that you can test your games without having to download them. Games are normally played on a logical Display World of 4 billion pixels (0-64K in each direction) - you just see your current surroundings in the screen which acts as a Display Window into this vast universe. With smooth hardware scrolling and SUZY doing her bit with the sprites program generation is easier than ever - so look forward to seeing some super new games!







The cartridges are less than 6cm x6cm and less than 3mm thick! They currently hold 128K, but they are experimenting with 512K and 1MB ones - cost will determine if and when they appear!

Power is provided by 6 AA batteries. Unfortunately the Lynx is a bit greedy on power so they will only last you a few hours - better buy some rechargeables fast! You get a mains adapter with the Lynx, and it can also run off the cigarette lighter in your car. Atari plan to release a suitable adaptor, but if you can't wait then there are plenty around already - I use an Archer High Current DC Power Adapter (400 milliamps) which has a suitable power plug - make sure you set it to 9 Volts and set the tip to positive.

The screen is rather vulnerable - because of the backlighting scratches show up badly, so do look after it - I keep mine in its original plastic bag to protect it. If the batteries get stuck just slightly loosen the nearest screw on the back of the case.

This is undoubtedly a superb games machine - Atari have a good lead on the rest of the pack as far as portables go. The Gameboy is nowhere near as good, and the rest are only rumours so far. The competition will be hard pushed to beat the power of SUZY or the versatility of the Comlynx.

PRICES: *Standard retail price is around £180, but most people were selling it at £150 at the show. Cartridges range from £25 to £35, again they were around £20 at the show, so shop around.*

VERDICT: *It would have been nice if it had come in at the originally rumoured price of £100, but it is still excellent value for money and all the games I have seen so far are very high quality. Rush out and buy one now!* ●

THE VIDEO CONNECTION

Robert Crewe and Andrew Homer show how you can use your computer for video titling

Are you one of the many computer users who also own a video recorder and camera? If so, you may already have experienced problems producing effective titles and credits. Budding film directors need look no further than this simple to use Video Titler program and the advice in this article!

Even without a camera the same techniques can be used to produce imaginative sequences (e.g. pop videos) by recording the computer's visual display directly onto video tape and adding a soundtrack.

USING THE PROGRAM

The Video Titler program allows up to twelve screen pages of text to be entered and saved to disk if required. Titles for the start of a program and credits for the end can be entered separately and saved under different filenames. Each screen page consists of up to three lines of large size GR. 2 text with a maximum of 19 characters per line. This amount of text will be found to be easily readable from an average viewing distance.

When the program is RUN you can either load in a previously saved sequence or create a new set of titles. If you are typing in a new sequence a screen is displayed which represents the video title area with Line no. and Page no. at the top. Lines of text are typed in at the bottom of the screen and then shown in their proper position by pressing RETURN. Titles can be positioned anywhere on the line by inserting spaces whilst typing in the text. Grid lines allow accurate positioning if, for example, you want your titles centred. A blank line is made by just pressing RETURN. When all three lines have been typed in you are asked if the page is OK. Entering a "Y" will move you to the the option of moving to the next page (RETURN) or finishing the title sequence (enter "F"). A "N" will erase the page for you to do again.

To view the titles you must first select a colour by typing in the appropriate number O-15. Although white titles (O) usually produce the best results, colours such as red can be used to create the mood of the video. Multi-coloured titles can also be produced by mixing normal and inverse, upper and lower case characters.

Having selected the colour, if you wish background music to accompany your titles you are invited to insert a music cassette into your program recorder and press PLAY. A countdown is given before the title sequence starts. This enables you to accurately time the starting of your video recorder by releasing its pause key.

The title sequence starts with a blank screen then the pages are displayed by fading the text in and out. The sequence ends with a blank screen for approximately ten seconds. Whilst the screen is blank the video recorder can be stopped. If required, the music can be turned off first at an appropriate moment by pressing the OPTION key. When the display has finished you are asked if you want a re-run which will send you back to the colour select screen where you may chose to view your titles in a different colour. Holding down the option key while the titles are running will also give you a re-run option. When you are satisfied with your titles entering a "N" to the re-run option will give you the opportunity of saving your titles to a previously formatted disk using the form Dn:filename.ext.

CONNECTING THE EQUIPMENT

In order to record the titles onto video tape the computer must be coupled directly to the video recorder. XL/XE machines, in common with many other systems, have both modulated UHF and composite video output sockets. For optimum recording quality it is strongly recommended that the composite video and audio outputs are used. All video recorders have suitable composite video and audio inputs and it is only necessary to make the connections using appropriate leads and, if necessary, switch from tuner to extension (or camera) input.

However, if the UHF socket is to be used, it should be connected to the aerial input socket on the video recorder using the RF lead supplied with your computer. A spare channel on the video recorder will need to be tuned to the computer's output signal. This connection will result in reduced picture quality and may cause picture disturbances whilst the signal is being recorded, however the recording should be steady when played back. Again, the composite video connections will give greatly improved picture quality and it is well worth the trouble of obtaining the appropriate leads!

Whichever connection is used, a television receiver (or monitor) must be connected and tuned to the output from the video recorder in the normal way. If connected properly, the computer's visual display should appear on the television screen. With the title program running the sound from the program recorder (if used) should also be heard. Alternatively, you could connect a standard cassette recorder to the audio input socket of the video recorder (providing you are using the composite video connection). In practice, it was found that unless the audio output of the computer was matched to the audio input of the video recorder, best audio quality was obtained using a standard tape deck.

RECORDING THE TITLES

Computer generated titles should not be recorded onto the front of existing programmes as severe disturbances can occur when the picture changes from titles to programme content. In order to avoid such problems the following sequence should be employed.

1. Record the opening titles (Computer)
2. Record the programme content (Video camera, second recorder or computer)
3. Record the closing credits (Computer)

If a video recorder with insert editing facilities is available, computer generated titles can be inserted at any point in an existing programme.

continued on page 18

```
WO 1 REM ******************************
XV 2 REM *         VIDEO TITLER       *
RU 4 REM *              by            *
BN 5 REM *    R.Crewe and A.Homer     *
OF 6 REM *----------------------------*
UM 7 REM * NEW ATARI USER - AUG 1990  *
WV 8 REM ******************************
NO 9 REM
NT 90 DIM MAIN$(740),IP$(20),TOP$(20),MID
   $(20),BOT$(20),AN$(1),FN$(15),PAGE$(80
   ),A$(740),B$(250),C$(240)
IQ 100 MAIN$=" ":MAIN$(740)=MAIN$:MAIN$(2
   )=MAIN$
HQ 110 SETCOLOR 2,0,0:SETCOLOR 4,0,0:POKE
    752,1:? CHR$(125)
UN 120 POSITION 5,5:? "DO YOU WISH TO USE
    A PREVIOUS TITLE(Y/N)";:INPUT AN$:IF
   AN$<>"Y" AND AN$<>"N" THEN GOTO 120
TR 130 IF AN$="Y" THEN GOTO 920
LJ 140 REM TITLE INPUT LOOP
FT 150 FOR PAGE=60 TO 720 STEP 60
PD 160 AN$="":? CHR$(125):POSITION 2,1:?
   "PAGE NO.";PAGE/60:GOSUB 750
AZ 170 PAGE$=" ":PAGE$(80)=PAGE$:PAGE$(2)
   =PAGE$
MZ 180 FOR LINE=20 TO 60 STEP 20:POSITION
    2,2:? "LINE NO.";LINE/20:T=T+1
JK 190 IF LINE=20 THEN Y=5
NH 200 IF LINE=40 THEN Y=9
CJ 210 IF LINE=60 THEN Y=13
TE 220 IP$=" ":IP$(20)=IP$:IP$(2)=IP$
YE 230 POSITION 13,19:? IP$
ZK 240 POSITION 1,19:? "YOUR CAPTION";:PO
   KE 752,0:INPUT IP$:POKE 752,1:IF LEN(I
   P$)>19 THEN GOTO 220
FR 250 PAGE$(LINE)=IP$
PW 260 PAGE$(80)=" "
YP 270 POSITION 14,Y:? IP$
DG 280 IF LINE=60 THEN POSITION 2,20:? "I
   S THIS O.K. Y/N ";:INPUT AN$:IF AN$<>"
   Y" AND AN$<>"N" THEN T=T-3:GOTO 160
ZQ 290 IF AN$="N" THEN T=T-3:GOTO 160
XB 300 MAIN$(PAGE-40)=PAGE$(20,79):PAGE$=
   ""
BA 310 IF LINE=60 THEN POSITION 2,21:? "R
   ETURN TO CONTINUE,TO FINISH ENTER F";:
   INPUT AN$:IF AN$="F" THEN GOTO 330
DJ 320 NEXT LINE:NEXT PAGE
BA 330 ? CHR$(125)
EV 340 IF AN$="F" THEN MAIN$(PAGE+20)="="
ZT 350 MAIN$(740)=" "
OH 360 REM SET UP FOR RECORDING
GI 370 ? CHR$(125):POSITION 2,5:? "ENTER
   COLOUR OF CAPTION (0-15)";:INPUT C:IF
   C>15 THEN GOTO 370
IE 380 POSITION 2,10:? "IF REQUIRED,INSER
   T MUSIC CASSETTE"
PX 390 POSITION 2,11:? "INTO RECORDER AND
    PRESS PLAY BUTTON"
IP 400 POSITION 2,20:? "PRESS START TO RU
   N":RN=PEEK(53279):IF RN=6 THEN GOTO 42
   0
LS 410 IF RN<>6 THEN GOTO 400
QV 420 GRAPHICS 18:SETCOLOR 4,0,0:SETCOLO
   R 0,0,14:FOR T=5 TO 1 STEP -1:FOR D=0
   TO 25
MD 430 POSITION 10,5:? #6;T:SOUND 0,320,1
   0,8:NEXT D:SOUND 0,0,0,0:? #6;CHR$(125
   ):FOR B=0 TO 200:NEXT B:NEXT T
BD 440 FOR D=0 TO 300:NEXT D:POKE 54018,5
   2
RZ 450 REM TITLER DISPLAY LOOP
RZ 460 FOR COUNT=0 TO 33 STEP 3
NN 470 TOP$=MAIN$(((COUNT+1)*20),((COUNT+
   1)*20+19))
KB 480 MID$=MAIN$(((COUNT+2)*20),((COUNT+
   2)*20+19))
QD 490 BOT$=MAIN$(((COUNT+3)*20),((COUNT+
   3)*20+19))
VL 500 REM DISPLAY TITLES
CH 510 GRAPHICS 18:SETCOLOR 4,0,0
FU 520 JMPOUT=PEEK(53279):IF JMPOUT=3 THE
   N POKE 54018,60:GOTO 660
QY 530 IF C>7 THEN X=C-2:Y=C-4:Z=C-6
MM 540 IF C<=7 THEN X=C+2:Y=C+4:Z=C+6
TL 550 FOR D=0 TO 750:NEXT D:FOR L=0 TO 1
   4 STEP 2:SETCOLOR 0,C,L:SETCOLOR 1,X,L
   :SETCOLOR 2,Y,L:SETCOLOR 3,Z,L
DE 560 POSITION 1,2:? #6;TOP$:POSITION 1,
   5:? #6;MID$:POSITION 1,8:? #6;BOT$
KU 570 FOR D=0 TO 20:NEXT D:NEXT L:FOR D=
   0 TO 500:NEXT D:FOR L=14 TO 0 STEP -2:
   SETCOLOR 0,C,L
UU 580 SETCOLOR 1,X,L:SETCOLOR 2,Y,L:SETC
   OLOR 3,Z,L
KQ 590 FOR D=0 TO 20:NEXT D:NEXT L
TM 600 IF MAIN$(((COUNT+4)*20),((COUNT+4)
   *20))="=" THEN GOTO 630
EN 610 NEXT COUNT
YH 620 REM RE-RUN AND SAVE ROUTINE
AU 630 SETCOLOR 0,0,0:SETCOLOR 1,0,0:SETC
   OLOR 2,0,0:SETCOLOR 3,0,0
EB 640 POKE 764,255:FOR D=0 TO 1000:STMU=
   PEEK(53279):IF STMU=3 THEN POKE 54018,
   60:D=700
EI 650 NEXT D
OR 660 GRAPHICS 0:SETCOLOR 2,0,0:SETCOLOR
    4,0,0:POKE 752,1:? CHR$(125):POKE 540
   18,60
UK 670 POSITION 5,5:? "DO YOU WANT A RE-R
   UN(Y/N)";:INPUT AN$:IF AN$<>"Y" AND AN
   $<>"N" THEN GOTO 670
PH 680 IF AN$="Y" THEN GOTO 330
TW 690 POSITION 5,5:? "DO YOU WISH TO SAV
   E THIS TITLE(Y/N)";:INPUT AN$:IF AN$<>
   "Y" AND AN$<>"N" THEN GOTO 690
NF 700 IF AN$="N" THEN GOTO 730
RX 710 ? CHR$(125):POSITION 5,5:? "ENTER
   FILENAME e.g.D1:HOLIDAY.88":TRAP 980:I
   NPUT FN$:OPEN #1,8,0,FN$
KK 720 PRINT #1;MAIN$(1,250):? #1;MAIN$(2
   51,500):? #1;MAIN$(501,740):CLOSE #1
LS 730 GOTO 100
RI 740 REM DRAW INPUT SCREEN
NX 750 POSITION 5,3:? "┌─────────────┬┴┴┴┴┴┴┴┴┴
   ┼┴┴┴┴┴┴┴┴┴"
TK 760 ? "    |                    |
   |"
NN 770 ? "    |LINE 1              |
   |"
TO 780 ? "    |                    |
   |"
TQ 790 ? "    |                    |
   |"
SZ 800 ? "    |                    |
   |"
NT 810 ? "    |LINE 2              |
   |"
TD 820 ? "    |                    |
   |"
TF 830 ? "    |                    |
   |"
TH 840 ? "    |                    |
   |"
OS 850 ? "    |LINE 3              |
   |"
TL 860 ? "    |                    |
   |"
TN 870 ? "    |                    |
   |"
RV 880 ? "    └─────────────┴┬┬┬┬┬┬┬┬┼┬┬┬┬┬┬┬┬
   ┘"
ML 890 ? "                          |"
ZF 900 RETURN
KH 910 REM RECOVER SAVED TITLES
DY 920 ? CHR$(125):POSITION 5,5:? "ENTER
   FILENAME e.g.D1:HOLIDAY.87":TRAP 990:I
   NPUT FN$:OPEN #1,4,0,FN$
AQ 930 INPUT #1;A$:INPUT #1;B$:INPUT #1;C
   $:CLOSE #1
WL 940 A$(LEN(A$)+1)=B$
XG 950 A$(LEN(A$)+1)=C$
FL 960 MAIN$=A$:GOTO 350
BL 970 REM ERROR TRAPS
IM 980 CLOSE #1:? CHR$(125):POSITION 5,10
   :? "ERROR TRY AGAIN":FOR D=0 TO 250:NE
   XT D:GOTO 710
SQ 990 CLOSE #1:? CHR$(125):POSITION 5,10
   :? "ERROR TRY AGAIN":FOR D=0 TO 250:NE
   XT D:GOTO 920
```

THE VIDEO CONNECTION continued

MAKING VIDEOS WITHOUT A CAMERA

Although the production of simple titles and credits has been described here, there is obviously plenty of scope for more ambitious graphics. Your Atari can be used as an impressive effects generator for creating your own videos. If your video recorder has an audio dub button you could record computer generated graphics (e.g. using art and design programs or arcade type games) and then add the soundtrack afterwards. The audio dub button enables you to record audio input without affecting the existing video recording. For this you will need to connect a standard cassette recorder to the video's audio input as described above.

If your video does not have an audio dub button you can still record music and computer generated graphics in real time. Try making animated sequences react in time to the music. Three programs which will do this for you are Stephen Prince's Disco program (Atari User Dec. 85), Craig Smith and Mark Harris's Graphic Equaliser simulation (Atari User Feb. 88), and not forgetting Allan Knopp's Bouncing Bert (Page 6 Issue 25). If you want to be really ambitious you could try producing computer generated sounds to accompany your own animations.

Experiment with these techniques and you could well be on the way to creating your own pop videos! ●

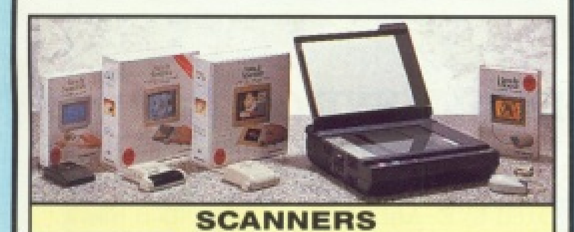
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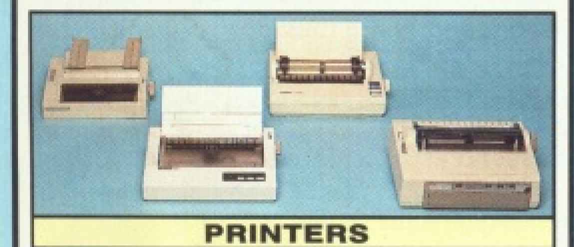
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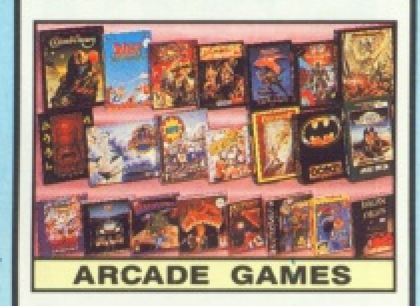
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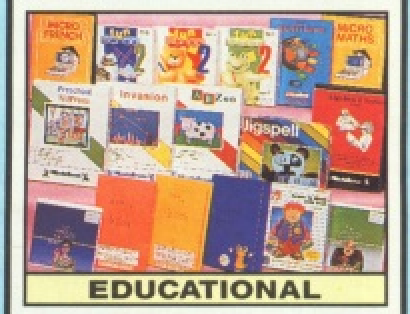
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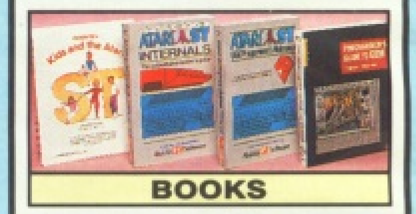
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EasyDOS

Dr Yuval Rabinovich provides a utility that gives full access to DOS functions whilst programming

How many times did it happen that you wanted to use a DOS function in the middle of BASIC programming, but you just could not remember the correct XIO parameters? How often do you need a disk directory, but you did not boot your ML utility that allows easy access to it? Sure, some solutions are available, like using non-standard BASIC, but it happens just too often that you use good old Atari BASIC. Even if you use Turbo Basic, you may find yourself in trouble when you want to create a new directory on your MyDos disks, and just do not remember the correct XIO syntax.

Now your troubles are over. After you prepare a disk with the EasyDOS program, you can boot your system with any standard configuration you like. When you need a DOS function, insert your EasyDOS disk into your drive, and type: ENTER "D:function", where 'function' is the desired DOS command. Available functions are:

DIR, DELETE, RENAME, LOCK, UNLOCK, FORMAT, JUMP, CMEM, BLOAD, WDOS, CHDIR, MKDIR, RMDIR

GETTING STARTED

Type in the accompanying listing, EASYDOS.BAS, check it with TYPO 3 and SAVE a copy before you RUN it. You will need it for easy backup as well as for preparing a RAMdisk version. Note that some of the DATA lines are specific for certain DOS systems. You need only type the lines that correspond to your DOS system, but you may want to type all of them anyway, in case you want to use a different DOS in the future. The Dos-specific DATA lines are preceded by explanatory REM statements.

When you RUN it, you will be prompted for a drive number. Insert a fresh formatted disk to the specified drive and press the <RETURN> key. You may want to specify a RAM disk number, such as 8 for Dos 2.5, for fast command access. The EasyDos files will be written to the diskette in the specified drive, with the above functions serving as filenames. Some of the filenames will have extenders, specific for the DOS they are intended for, such as BLOAD.DS2 for Dos 2.0/2.5, BLOAD.DS3 for Dos 3, BLOAD.MDS for MyDos, and BLOAD.SDX for SpartaDOS X. If you already have any file with such a name, it will be overwritten. That is why it is recommended to use a freshly formatted diskette before you start. Rename the files with the appropriate extenders, so the extenders will not be included. These extenders are there only to remind you which files are relevant to your configuration. The files that have no extenders can be used with all systems.

USING EASYDOS

As mentioned above, EasyDOS syntax is ENTER "D:function". ENTER can be abbreviated to E. and the right quotation mark is optional. A prompt will be displayed, allowing you to switch disks, if necessary. Working with more than one drive will make your life much easier.

For example, type:

ENTER "D:LOCK"

The computer will respond with:

LOCK>

and will wait for you to type a file name.

If no drive specification is given, 'D:' is assumed. If you type MYPROG, the computer will look for D:MYPROG and will lock it. If you type D3:MYPROG, the same file will be locked in drive number 3.

THE EasyDOS FUNCTIONS

DIR - Disk directory. You will be asked for a filespec. Pressing <RETURN> alone defaults to D:*.*. Otherwise, give the complete filespec, including the drive header (Such as D1:*.BAS).

DELETE, RENAME, LOCK, UNLOCK - You will be prompted for the filename. If you choose DELETE, a bell will remind you to be careful.

FORMAT - Works like option I from the DOS 2 or DOS 2.5 menu. (If you use DOS 3, it will format a disk in single density, even if you use a 1050 drive. If you want to use another default setting, read below on "modifying EasyDOS".) You will be prompted for a drive number, and be asked to press RETURN to confirm. Press any other key to abort.

JUMP - Binary run at address. You will be prompted to give a decimal address. Note that this option is like option M from the DOS menu, rather than the regular USR command from BASIC in the sense that it does not put any parameters on the stack and therefore does not require an extra PLA instruction.

CMEM - Create the MEM.SAV file. You will be prompted to confirm. The utility creates the MEM.SAV file to drive 1 only. I do not expect you to use it often, but the need may rise if you

continued on page 22

EasyDOS

```
WO 1 REM ******************************
TE 2 REM *           EASYDOS          *
RU 4 REM *              by            *
IQ 5 REM *    Dr. Yuval Rabinovich    *
HM 6 REM *      Tel Aviv, Israel      *
OG 7 REM *----------------------------*
UN 8 REM * NEW ATARI USER - AUG 1990  *
WW 9 REM ******************************
AY 10 REM
PH 100 DIM A$(123),B$(120),EOL$(1):EOL$=C
   HR$(155)
GP 101 ? CHR$(125):? :? "Create EasyDOS f
   iles.":? "Enter destination drive >";
MQ 102 TRAP 241:INPUT #16;A:TRAP 242:IF A
   <1 OR A>8 THEN 241
IL 103 POKE 752,1:? "◄";:A$="D :":A$(2,2)
   =STR$(A)
EE 120 READ B$:IF B$="END OF DATA" THEN 2
   40
KA 130 A$(4)=B$:? "Creating ";A$:OPEN #1,
   8,0,A$:EOF=0
WS 140 READ B$:IF B$="" THEN 140
FM 150 I=0
ZL 155 I=I+1:IF I>LEN(B$) THEN 220
QK 160 IF B$(I,I)<>"[" THEN 155
XC 170 IF I=LEN(B$) THEN B$(I)=",":GOTO 2
   20
IE 180 B$(I)=B$(I+1)
YP 190 IF B$(I,I)="L" THEN B$(I,I)=EOL$:G
   OTO 155
BL 200 IF B$(I,I)<>"F" THEN 155
DG 205 B$(I)="":EOF=1
HG 220 ? #1;B$;:IF EOF THEN CLOSE #1:GOTO
    120
NF 230 GOTO 140
BA 240 POKE 752,0:END
KW 241 ? "Aborted!":END
IV 242 POKE 752,0:? "Unexpected error #";
   PEEK(195);".":END
KU 300 DATA DIR
UE 310 DATA CL.#1:CLR:DIMA$(120)[,B$(6):B
   $="D:*.* ":?"DIR>";:I.#16;A$:A$(LEN(A$
   )+1)=B$(6-5*(A$="")):O.#1[,6[,0[,
YT 320 DATA A$:F.A=0TO1:I.#1[,A$:?A$:A=(A
   $(1[,1)>"*"):N.A:CL.#1[L[F
WC 330 DATA DELETE
LH 340 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"▮DELETE>";:I.#16;B$:A=LEN(B
   $):B$(A+1)="    ":A$(3-2*(B$(2[,2)
QP 350 DATA =":"ORB$(3[,3)=":"))=B$:IFA<>
   0THENX.33[,#1[,0[,0[,A$[L[F
WW 360 DATA RENAME
XL 370 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"RENAME old[,new>";:I.#16;B$
   :A=LEN(B$):B$(A+1)="    ":A$(3-2*(
FN 380 DATA B$(2[,2)=":"ORB$(3[,3)=":"))=
   B$:IFA<>0THENX.32[,#1[,0[,0[,A$[L[F
VR 390 DATA LOCK
JS 400 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"LOCK>";:I.#16;B$:A=LEN(B$):
   B$(A+1)="    ":A$(3-2*(B$(2[,2)=":
FF 410 DATA "ORB$(3[,3)=":"))=B$:IFA<>0TH
   ENX.35[,#1[,0[,0[,A$[L[F
FS 420 DATA UNLOCK
UK 430 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"UNLOCK>";:I.#16;B$:A=LEN(B$
   ):B$(A+1)="    ":A$(3-2*(B$(2[,2)=
CX 440 DATA ":"ORB$(3[,3)=":"))=B$:IFA<>0
   THENX.36[,#1[,0[,0[,A$[L[F
GM 450 DATA FORMAT
ZA 460 DATA CL.#1:CLR:DIMA$(3):A$="D :":O
   .#1[,4[,0[,"K:":?"FORMAT>";:GET#1[,A:?
   CHR$(A):A$(2[,2)=CHR$(A):?"<RETUR
CH 470 DATA N> to format ";A$;" >";:GET#1
   [,A:CL.#1:?:IFA=155THENX.254[,#1[,0[,0
   [,A$[L[F
EN 480 DATA JUMP
BD 490 DATA CLR:DIMA$(4):A$="hL":?"Run ad
   dress >";:I.#16;A:A$(4)=CHR$(INT(A/256
   )):A$(3[,3)=CHR$(A-ASC(A$(4))*256
DG 500 DATA ):A=USR(ADR(A$))[L[F
ST 510 DATA CMEM
ZT 520 DATA CL.#1:O.#1[,4[,0[,"K:":?"Pres
   s RETURN to create D1:MEM.SAV >";:GET#
   1[,A:CL.#1:?:IFA=155THENO.#1[,8[,
MF 530 DATA 0[,"D1:MEM.SAV":CL.#1[L[F
ZV 535 REM Lines 540-590 -> DOS 2.0/2.5
CR 540 DATA BLOAD.DS2
TU 550 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"BLOAD>";:I.#16;B$:A=LEN(B$)
   :B$(A+1)="    ":A$(3-2*(B$(2[,2)="
BE 560 DATA :"ORB$(3[,3)=":"))=B$:IFA<>0T
   HENO.#1[,4[,0[,A$:A=USR(ADR("hLH▬")):C
   L.#1[L[F
WM 570 DATA WDOS.DS2
GH 580 DATA CL.#1:CLR:DIMA$(10):A$="D :DO
   S.SYS":O.#1[,4[,0[,"K:":?"WDOS>";:GET#
   1[,A:A$(2[,2)=CHR$(A):?CHR$(A):?"
JY 590 DATA Press RETURN to write ";A$;:G
   ET#1[,A:CL.#1:?:IFA=155THENO.#1[,8[,0[
   ,A$:CL.#1[L[F
JC 595 REM Lines 600-620 -> DOS 3
DC 600 DATA BLOAD.DS3
SZ 610 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"BLOAD>";:I.#16;B$:B$(LEN(B$
   )+1)="    ":A$(3-2*(B$(2[,2)=":"OR
GO 620 DATA B$(3[,3)=":"))=B$:X.41[,#1[,0
   [,0[,A$[L[F
AV 625 REM Lines 630-710 -> MyDos
VF 630 DATA BLOAD.MDS
TT 640 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"BLOAD>";:I.#16;B$:A=LEN(B$)
   :B$(A+1)="    ":A$(3-2*(B$(2[,2)="
IW 650 DATA :"ORB$(3[,3)=":"))=B$:IFA<>0T
   HENX.39[,#1[,4[,0[,A$[L[F
AP 660 DATA CHDIR.MDS
LL 670 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"CHDIR>";:I.#16;B$:A=LEN(B$)
   :B$(A+1)="    ":A$(3-2*(B$(2[,2)="
OY 680 DATA :"ORB$(3[,3)=":"))=B$:IFA<>0T
   HENX.41[,#1[,0[,0[,A$[L[F
FY 690 DATA MKDIR.MDS
KB 700 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"MKDIR>";:I.#16;B$:A=LEN(B$)
   :B$(A+1)="    ":A$(3-2*(B$(2[,2)="
HY 710 DATA :"ORB$(3[,3)=":"))=B$:IFA<>0T
   HENX.34[,#1[,8[,0[,A$[L[F
QM 715 REM Lines 720-830 -> SpartaDos X
CI 720 DATA BLOAD.SDX
TS 730 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"BLOAD>";:I.#16;B$:A=LEN(B$)
   :B$(A+1)="    ":A$(3-2*(B$(2[,2)="
UY 740 DATA :"ORB$(3[,3)=":"))=B$:IFA<>0T
   HENX.40[,#1[,4[,0[,A$[L[F
HS 750 DATA CHDIR.SDX
LK 760 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"CHDIR>";:I.#16;B$:A=LEN(B$)
   :B$(A+1)="    ":A$(3-2*(B$(2[,2)="
UC 770 DATA :"ORB$(3[,3)=":"))=B$:IFA<>0T
   HENX.44[,#1[,0[,0[,A$[L[F
NB 780 DATA MKDIR.SDX
KT 790 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"MKDIR>";:I.#16;B$:A=LEN(B$)
   :B$(A+1)="    ":A$(3-2*(B$(2[,2)="
QD 800 DATA :"ORB$(3[,3)=":"))=B$:IFA<>0T
   HENX.42[,#1[,0[,0[,A$[L[F
PI 810 DATA RMDIR.SDX
UG 820 DATA CL.#1:CLR:DIMA$(122)[,B$(123)
   :A$="D:":?"▮RMDIR>";:I.#16;B$:A=LEN(B$
   ):B$(A+1)="    ":A$(3-2*(B$(2[,2)=
ZK 830 DATA ":"ORB$(3[,3)=":"))=B$:IFA<>0
   THENX.43[,#1[,0[,0[,A$[L[F
DG 835 REM Line 840 for all DOS systems.
OU 840 DATA END OF DATA
```

wish to use an advanced feature from the DOS menu, such as duplicate disk, without losing data. Note that not all DOS systems use MEM.SAV, and this option is valid only on the appropriate systems.
BLOAD - Binary load. You will be prompted for a filename. Note that each DOS system has its own version of this command.
WDOS - Write the DOS.SYS file only. The DUP.SYS file will become less necessary. You will be prompted for a drive number. Any non numeric response is assumed as drive 1. You will then be asked to confirm writing the DOS file by pressing RETURN. Press any other key to abort.
CHDIR - Change the current active directory, for systems that support subdirectory tree structure.
MKDIR - Create a new subdirectory. Only with systems that allow such a structure.
RMDIR - Remove an empty subdirectory for systems that support it. Note that MyDos subdirectories may be deleted with the regular DELETE function.

HOW IT WORKS

The ENTER command is usually referred to as a way to merge BASIC programs. New lines are added to the program in memory from the input device (usually a disk). Actually, the ENTER command transfers the input device from the keyboard to the specified device, without echoing the input on the screen. Therefore, if a BASIC statement begins with a line number, it will be added to the program in memory. If the line does not contain a line number, it will be executed as if it is typed from the keyboard, in direct mode. All the files in the EasyDOS package are short BASIC routines, being executed in direct mode.

EasyDOS LIMITATIONS

It is assumed that EasyDOS will be used in direct mode during program development, and not while a program is running. Therefore, EasyDOS functions perform a CLR statement before anything else. Channel #1 is closed by the execution of any EasyDOS function. EasyDOS may use a few BASIC variables, like A, A$, B$, etc. I have deliberately chosen common variable names, in order not to increase the variable name table. Some EasyDOS commands are DOS specific, and will not function properly unless used with the appropriate DOS, as mentioned earlier. If you use a DOS that is not specified above, I suggest you make some experiments with a scratch disk. This is because some CIO calls are incompatible between different DOS systems. An XIO call that makes a subdirectory on one system, may perform a binary load on another! EasyDOS is very easy to use, but it is even more user-friendly when used with more than one disk drive. It then works very similar to MS-DOS external commands.

MODIFYING EasyDOS

It is relatively easy to create an EasyDOS file. You can use a word processor to create the file, and the file itself should contain legal BASIC statements. If you do not have a word processor, or you want to use special graphic characters, you can create a string that holds the statement, and PRINT it to a disk file. For example:

```
OPEN #1,8,0,"D:function":? #1;A$:CLOSE #1
```

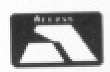
It is necessary to put a semicolon before the variable name, and not to put anything after it to achieve the proper result.

Another way of creating such a file is from the DOS menu. Choose the copy file option (option C), and answer the prompt "copy--from,to?" with the response: E:,D:filename. A file will then be opened, and it will accept entries from the screen editor. You can edit lines in the usual way, but once you have pressed RETURN, the line will be accepted, and you will not be able to modify it. Press CONTROL-3 to close the file. BASIC is more tolerant to long lines as inputs from a disk file then it is to the built-in editor. Every logical line can be up to 251 characters long, including carriage return, compared to 114 in the built-in editor (that can be stretched to 120). But the number of statements per line is limited to 21 (less, if the statements are complicated). If a line contains more statements, an error #14 will result. If you put several executable lines in one file, be aware that the "READY" message will be displayed on the screen after the execution of each line. To delete the message, start each new line with the statement:

```
PRINT "[up][delete line]";:(rest of line)
```

It is recommended to load EasyDOS files with a word processor, and to examine them, to see how to create new files. Make sure that all open IOCBs will be closed before control is given back to the user. This is usually not a problem, but believe me it was quite a difficult job to achieve in creating the DIR function.

If you have a 130XE then the EASYDOS files can be loaded to a Ramdisk and called from D8: making the utility even easier to use. You can of course set up an 'autoload' to D8: with an appropriate utility on your boot disk. 800XL owners should also be able to do the same, since the EASYDOS files are quite small, by using the modified DOS on PAGE 6 Library Disk #36 - XL/XE KIT which allows a ramdisk on the 800XL.




A NEW TIPSTER!

We need a new TIPSTER! Will it be you?

What the Tipster has to do is collate all of the contributions sent in by our readers into some sort of coherent whole for each issue.

What you get is loads of stuff sent to you, the secret joy of knowing that you are the Tipster plus a small remuneration for each column.

What we need from you is a well put together column submitted on time every issue complete with maps and any illustrations.

What you need is a good knowledge of the 8-bit Atari games scene, the ability to write in a humorous but clear style, the skill to redraw maps and trace (or draw) a few illustrations and the capability of submitting the copy by the deadline without being reminded.

If you can't do all of that, don't apply!

If you are interested, convince the Editor that you are the person for the job by writing to Les Ellingham, PAGE 6 Publishing, P.O. Box 54, Stafford, ST16 1DR

Apply only if you love the 8-bit Atari and can guarantee all of the qualities outlined above!

BACK ISSUES

The following back issues of NEW ATARI USER are still available

Issue 31	Issue 39
Issue 32	Issue 40
Issue 33	Issue 41
Issue 34	Issue 42
Issue 36	Issue 43
Issue 37	Issue 44
Issue 38	

DISKS ARE AVAILABLE FOR ALL THESE ISSUES

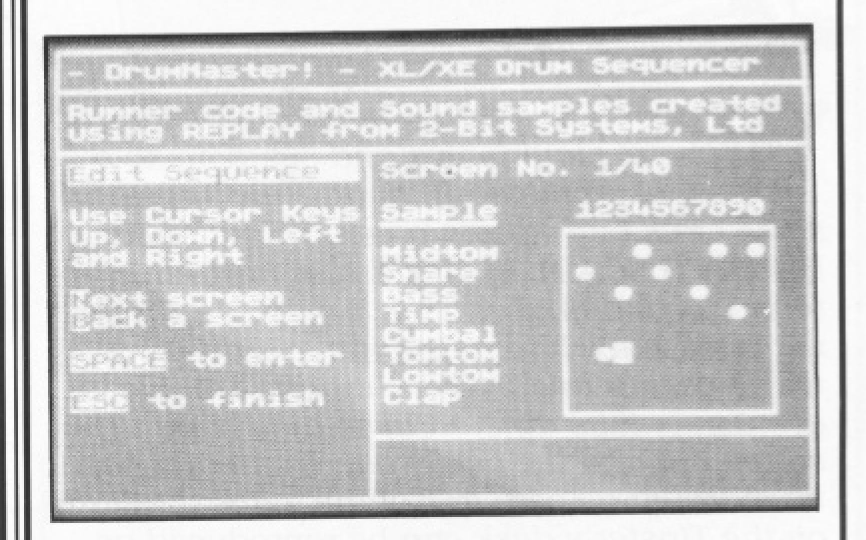
BACK ISSUES are £1.50 each in the UK, £2.40 for Europe or surface mail elsewhere and £3.50 for Air Mail outside Europe. Prices include postage
ISSUE DISKS are for any 48k or 64k 8-bit Atari
Each disk is £2.95. Postage FREE in U.K.
Overseas add £1 per order (any number of disks)
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PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR, ENGLAND.
ACCESS and VISA accepted. Telephone 0785 213928

DISK BONUS

DrumMaster!

by Mike Blenkiron



Have fun turning your Atari into a drumkit complete with sequencer

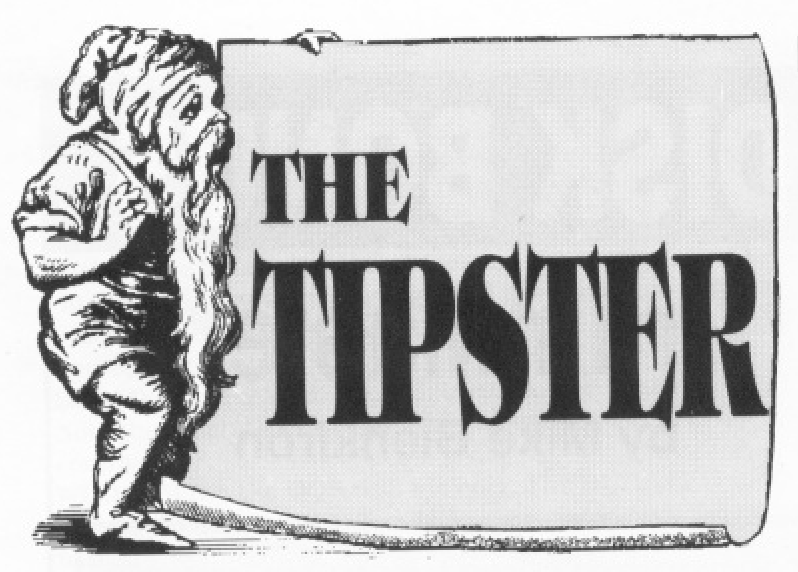
DrumMaster! is a menu-driven digital drum sequencer/player which allows drum patterns and songs (made up of patterns) to be entered, played, and recorded on disk. Eight drum samples are supplied on disk (all with extender .SPL) along with the main player.

Options include:
- Play Drums: 8 sampled sounds to play with
- Alter Tempo: alters the speed of playback
- Edit Sequence: Up to 40 screens may be saved from the editor
- Edit Song: Change existing songs
- Play Sequence: With or without looping
- Play Song: Plays the current song in memory
- Load Sequence/Load Song
- Save Sequence/Save Song
- Utilities:
  - Format a disk
  - Get a directory read (single or enhanced disk)
  - Change the screen colour
  - Change the screen luminence
  - Change the text luminence
  - Return to the main menu selection screen

FULL INSTRUCTIONS FOR USE ARE ON THE DISK

The drum samples in DrumMaster were created by Dean Garraghty using the REPLAY sound sampling system from 2-Bit Systems. All loader/runner code was also taken from REPLAY.

If you have any questions, or ideas for improving DrumMaster!, please feel free to write to:
MIKE BLENKIRON, 15, Ambassador Gardens, Armthorpe, Doncaster, DN3 3JW



AIN'T SCARED OF BLINKY NO MORE!

Welcome to another helping of games help, playing tips and solutions to a few problems. This time we'll have some hints and tips on a very recent release - BLINKY'S SCARY SCHOOL and next time round we'll probably have a map of it. In fact we could have had a dozen maps this time, we've been inundated with them! Trouble is everyone maps differently so they have to be sorted out and the one chosen normally has to be redrawn as very few of the maps that land on the Tipster's desk can be reproduced as they are. Anyway, much of next issue will depend on the NEW Tipster, yes that's right your present Tipster is retiring from the scene and there is an opening for a new Tipster. Will it be you? Check out the rest of the mag, somewhere you'll find out how to apply. Now down to this issue's business.

HAWKQUEST

Christopher Bevan has found two extra features on the map screen of the Kiross star system. If you move the cursor to the bottom right-hand corner and press the 'FIRE' button, you will be greeted with the message "Written at the Atari Computer Users Group, Dunedin, New Zealand". If you then move the cursor to the bottom LEFT-HAND corner and press the 'FIRE' button, the message "to cheat press FIRE" is shown. So press 'FIRE' and you will be taken to the final sequence of the game, which is brilliant! If you do complete the game properly (that is, without cheating) it will certainly make all that hard work worthwhile.

LASER HAWK

When playing this game, press 'B' whilst on the title screen to disable the sprite collision detection.

BLINKY'S SCARY SCHOOL

One of the first detailed sets of tips came from Lee Nelson of Woolwich, London. Since then there have been hundreds, but Lee was in there first and he also sent a map, which we don't have room for this time, plus a lot of other hints so he gets this issue's collection of freebies. Well done, Lee.

The key to this game is timing. This will lessen the amount of energy that you will use up. A good knowledge of the lower screens is useful as you will need to complete them in the dark!

First of all, get the **FLOUR**. Rush through the Falling Spike screen and carry on until you fall down the left passage. Jump over the Snails and get the **PERFUME**. Go down to the next screen which is 'blacked out'. Go to the left and try to judge the jump. Get the **TOILET ROLL** and fall down to the next screen. Go left until you reach the Toilet.

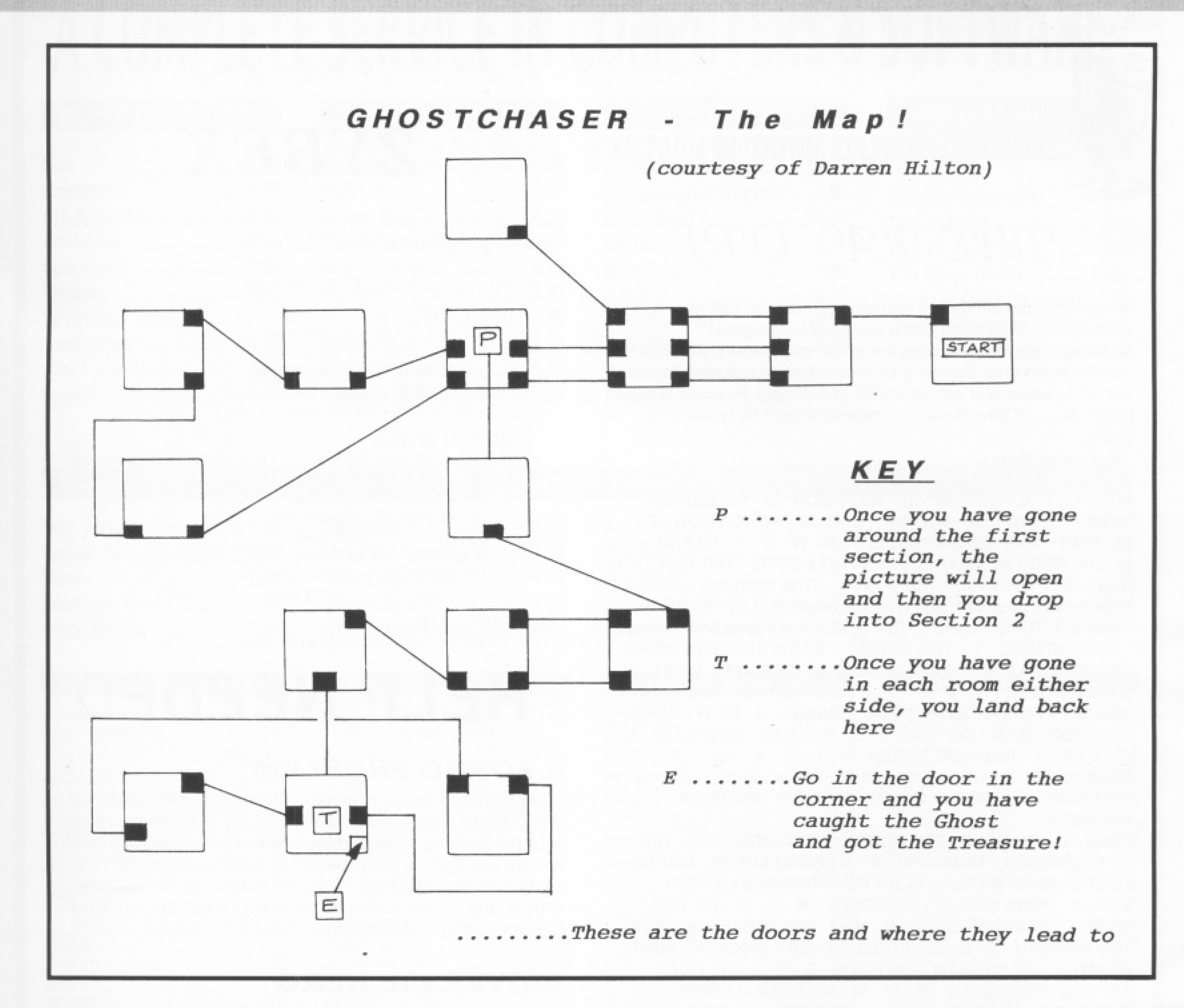
Jump on it - honest! - and you will be transported to the Scroll screen. Put the items in the Pot and go back to the screen with the two Snails. Go left and jump up onto the Ledge. On the next screen, fall down and go right to the next screen and get the **FISH**. Go back and jump over the Spikes until you get to another Toilet Roll room. Get the **ROLL** and fall down.

Carry on until the 'Lemon Aid' screen and get the **POP**. Fall down the left passage and go onto the Toilet screen. Don't move until the Mouse comes up to you. Then you will have a clear run to the Toilet. Put the items in the Pot and you will fly up to the Ledge. Go left until you reach the Spike screen. Jump over the mouse on the 3rd Step down and carry on. Get the **NEWT'S EYE** and get to the Bars on the left. Carry on up the Bars until you reach the Wasp screen.

Dodge the Wasps and get the **SCONE** on the next screen. Dodge the Birds and carry on all the way to the end. Get the AIR and make your way to Pot 2 and drop the items. Use the Bars to get to the Snail Ledge and jump over him. Dodge the Mice on the next screen, carry on and get the **GUM**. Put the **GUM** in Pot 2 and go back to Pot 1.

Carry on until you reach the 1st Toilet Roll screen. Get the **ROLL** and then go up to the next screen and get the **LIGHT**. Now go to the Sea Entrance. Go down to the bottom and then right. Work your way to the top, then go right. Jump onto the Ledge and jump over the Snail. The Spikes on the next screen are frustrating! Just run really far onto them and jump - you will think you're going to die but you won't. Carry on to the end, jump onto the Gravestone and get the **ALARM CLOCK**. Go back to the Spikes and don't go near them. Jump over them and go back to the Sea Entrance. Float to near the top left of the surface of the water and jump up. Go onto the Toilet and work your way to Hamish. Jump above him on the Bars. The **ALARM** will sound and he wakes up. You have now completed the game!

We may have more from Lee in future issues.



BRUCE LEE

The following handy tip comes from Jude Kennedy who points out that it applies to anyone who has at least TWO joysticks, one of which has autofire on it.

First connect the joystick with autofire to the SECOND joystick port, then connect another joystick to the FIRST joystick port. On the title screen, select one player versus one opponent mode, then start the game as usual by pressing START.

When you start playing, switch the joystick in the SECOND joystick port to autofire mode. you will see that Green Yamo keeps punching at nothing!

Normally, when you select this mode, the computer will switch back to the default mode if there is no response from the second joystick, so the autofire prevents the computer from doing this. This means that, not only will Green Yamo be too busy to fight you, but you will have ten lives as well, making it far easier to complete the game!

Jude has also sent his personal high-score in for this game along with a few others ..... do I hear a request for 'High Score' records?

JUDE KENNEDY'S HIGH SCORES

BRUCE LEE	154525
CHUCKIE EGG	275190 (Level 21)
SCREAMING WINGS........	39420 (Level 5)
ARKANOID	120280 (Level 14)
ZYBEX	68100 (tokens = 5)

AND THE WINNER IS ...

Well you already know if you have read the column! Lee Nelson is now the proud owner of the THREE VIDEOS mentioned in the last issue. Let's hope that he has a video recorder otherwise he'll have to sell his Atari to buy one!

The prize for the best contribution next issue is a collection of FIVE ATARI ROM's - POLE POSITION, JOUST, GALAXIAN, STAR RAIDERS II, LODE RUNNER or whatever else might be around at the time of the award. Let's be hearing from you then - keep those hints, tips, cheats, solutions, maps etc. coming.



THIS ISSUE'S COMPLETE ADVENTURE SOLUTION!

THE PAY-OFF

Judging by the amount of requests for help on this one, this solution will bring to an end a few sleepless nights!
As always, the verbs and nouns in the solution are coded to prevent accidental scanning by those who do not wish to know the full solution just yet, so PORD LLA simply reverses to read DROP ALL. All directional commands should be typed in as given.
Here we go then.......

PORD LLA - E - OG EPIP - U - TEG TSIOH - D - OG EGDEL - NEPO WODNIW - OG WODNIW - S - S - S - PORD TSIOH - E - OG TNET - TEG REMMAHEGDELS - N - W - N - N - KAERB ROOD - PORD REMMAHEGDELS - OG ECIFFO - TEG HSA - BUR HSA - LEEF GNITNIAP - NEPO EFAS - (The following number code is NOT reversed, just type it straight in!......) - R37L10R320 - (that's R, Thirty-Seven, L, Ten, R, Three hundred and Twenty!!) - TEG LORTNOC - E - TEG SEVOLG - RAEW SEVOLG - NEPO DRAOBPUC - TEG ELCAERT - NEPO EGDIRF - TEG TAEM - W - S - TEG ROZAR - N - W - S - S - E - OG TNET - D - TUC ERIW - WOLLEY - PORD ROZAR - PORD SEVOLG - U - N - W - PORD LORTNOC - N - N - OG ECIFFO - S - TEG NAC - TEG SLLIP - N - W - S - S - S - TEG REPAPSWEN - N - E - E - N - TIH REIMUTSOC - E - OG ECNEF - GURD TAEM - EVIG TAEM - U - OG EGDEL - DAERPS ELCAERT - WODNIW - KCITS RE-PAPSWEN.
PMUJ - D - OG DEHS - TEG LOOTS - NEPO XOBLOOT - TEG REVIRDWERCS - TEG LLIRD - E - U - PORD LOOTS - DNATS LOOTS - NEPO MRALA - PORD REVIRDWERCS - YARPS MRALA - PORD NAC - D - OG ECNEF - W - S - W - W - TEG TSIOH - TEG LORTNOC - E - E - N - E - OG ECNEF - OG DEHS - TEG REMMAH - E - U - OG EGDEL - KAERB WODNIW - PORD REMMAH - OG WODNIW - OG ROOD - E - E - E - N - GURD EEFFOC - PORD SLLIP - S - W - W - N - TEG ALLERBMU - N - ENOHP DRAUG - S - S - E - E - N - TEG DRAUG - OG TFIL - HSUP NOTTUB - OG TLUAV - SSERP LORTNOC - PORD LORT-NOC - OG ROOD - SSERP XOB - DRAUG - PORD DRAUG - W - KOOL TSIL - SSERP NOTTUB - E - E - OG TFIL - HSUP NOTTUB - OG KSED - S - W - W - N - KOOL RETIRWEPYT - KOOL GULP - PORD LLIRD.
TEG ESUF - TIF ESUF - TEG LLIRD - N - LLIRD ROOLF - TUP ALLERBMU - NEPO ALLERBMU - LLIRD ROOLF - GIR TSIOH - OG TSIOH - LLIRD XOB - 654897 - (Again, enter the number as it is given!) - NEPO XOB - 654897 - U - PORD LLIRD - S - S - W - OG MOOREROTS - EVOM TENIBAC - TLOBNU ROODERIF - OG ROODERIF - D - OG ECNEF - W - S - E - EVIG MEG - KCOLNU RAC - PORD YEK - OG RAC - NEPO ESACFEIRB - OG KRAP-RAC - W - W - W - N - N - N - U - OG EPIP - D - W - EVIG $40000.....to complete the game!
(You can also 'KAERB DNIW' for a little light relief!)

QUICKIES ... QUICKIES ... QUICKIES ...

A handful of tips from Mark Thackray who makes a point of telling me that he is NOT from Scotland, he just lives there!

KNOCKOUT BOXING
When prompted to 'Rewind Tape to 000' to restart - DON'T! Because then you can instead load in all the other opponents!

BREATH OF THE DRAGON
On the title screen, press a key from 1-6 and you will start on the corresponding maze.

HARDHAT MACK
Press 1, 2 or 3 to START on that screen!

ZYBEX

Here's some help from Iain Finney on Zybex which he reckons will help you beat this game. Can you?

Start the game on the HARDEST level.

HARD LEVEL
1: ENCLEDUS = 4 extra men
2: PROCYON = 5 extra men
3: CENTAURUS = 2 extra men
4: ANTRES = 2 extra men
5: BEROS = 2 extra men

MEDIUM LEVELS
Before going onto SKORPIUS, deal with NECROS first as your weapons are replenished
6: RICTUS = 1 extra man
7: SKORPIUS = 5 extra men
8. TITAN = 4 extra men
9: BAEUS = 2 extra men
10: NECROS = 2 extra men
11: DIABLOS = 2 extra men

EASY LEVEL
12: ARCTURUS = Nil extra men

HELP NEEDED

A ZORRO PROBLEM

A problem has arisen regarding Stephen Garbett's solution to this game in Issue 43. Eric Foley has got as far as the room with the flashing icons and become completely stuck! He did not see any barrels to the far left or anywhere else. Can anybody explain this game in more detail? Maybe Eric has gone wrong somewhere or is there more than one version of the game about? Maybe things happen randomly?

UNIVERSAL HERO

Chris Roberts cannot enter his ID in the computer room. We are given to understand that it should be 'SLARTIBARDFAST' yet no input is possible by keyboard or joystick. We don't have this game at present so can anyone assist?

Further requests for cheats, tips, maps or solutions have been requested for the following games:- **KING OF THE RING, POTHOLE PETE, THRUST, MILK RACE, MOUNTAIN BIKE RACER, AIRSTRIKE 2, ZYBEX, BOMB FUSION, GUN LAW, ROGUE** .... can anyone oblige?

Send your hints, tips, maps and solutions to

THE TIPSTER
NEW ATARI USER
P.O. BOX 54, STAFFORD, ST16 1DR

A TIPSTER EXCLUSIVE!



Every reader sending in a NEW hint, tip, cheat or map will receive THE TIPSTER's unique badge, whether the contribution is used or not. The only qualification is that the tip must not have been used before in this column (ripping pages out of old Atari User mags doesn't count either!). Please note that we cannot indicate whether your hint or tip will appear in a future issue - it might, it might not - depends what The Tipster had for dinner when he comes to type up the column.

TURBO BASIC makes a welcome return with two quite different programs showing the versatility of the language

COLOUR-CYCLING DEMONSTRATION

by Gordon Cameron

This little demo uses mode 10, and rotates 7 colours at speed, to create the illusion of movement. Geometric patterns are drawn on screen, and appear to 'flow' as they are being drawn and afterwards.

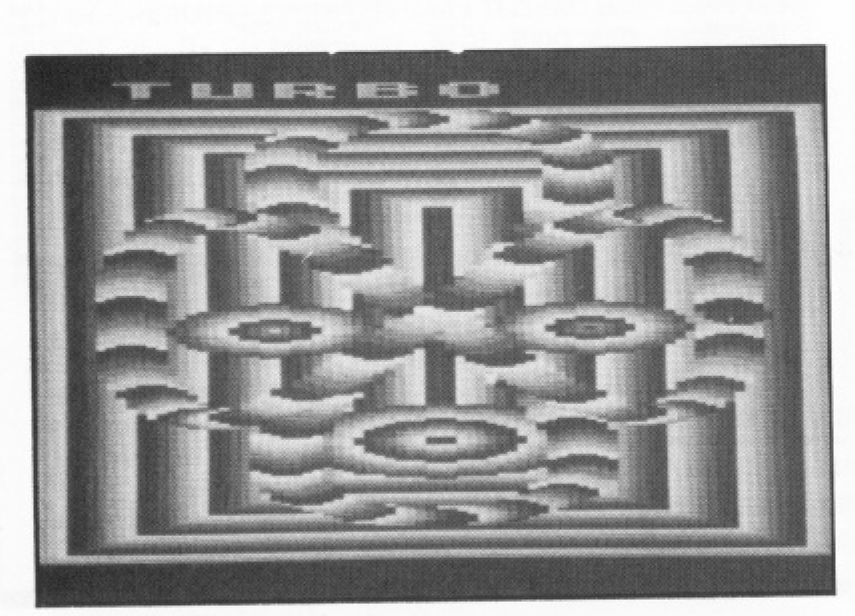
The demonstration makes use of the MOD command available in Turbo Basic. This returns the remainder after integer division. This may not seem that useful at first thought but it allows you to, among other things, count in sequence without testing to see if the end of sequence has been reached. For example, say we wish the variable C to be incremented 1 at a time, but only to range from 0-9. Normally we would use C=C+1, followed by an IF test to check if 10 has been reached. However, this wastes times, and is clumsy. It is much easier to use the command:

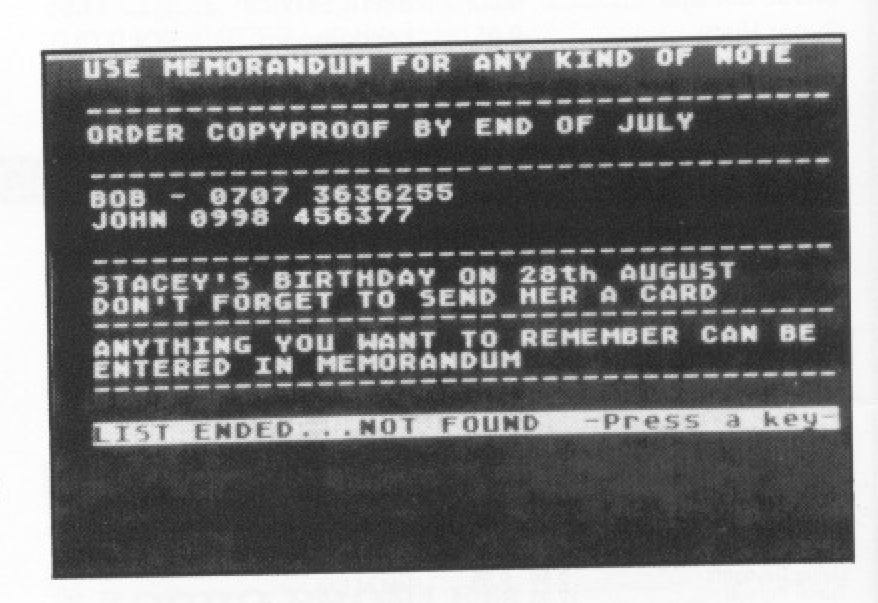
```
C=(C+1) MOD 10
```

In this way, the value of C can never go outside the range 0-9, as the remainder after integer division of any number by 10 always lies between 0 and 9. It is this principle which is used within the demo (with the difference that C is incremented by 2, and does not start at 0).

Another Turbo Basic command used is 'PAINT'. This is a command which fills any enclosed area, using a recursive routine. Other structuring commands are used in loops etc., these being unique to Turbo Basic.

Also notice that, since the actual colour-cycling loop needs to be fast, as much calculation as possible is done BEFORE the loop is actually encountered. This pre-processing greatly increases speed and efficiency.





MEMORANDUM

by Robert de Letter

Memorandum is a simple notebook written in Turbo basic. It will enable you to record all types of information you need quite simply as a series of notes which are stored on disk when you exit the program and are loaded each time the program is run.

Memorandum is so simple to use that an explanation is almost unnecessary. Just boot up your copy of Turbo Basic, type in the program, SAVE it and RUN it. You will see a self-explanatory menu, the only thing you need to remember is to always leave the program by selecting Exit, since it is only by this method that your notes are saved.

Memorandum acts just like a notebook that you may have on your desk except that you can search through it to find only certain notes. The search will pick up a word anywhere in the note so the method of entry is totally freeform. You could for instance make a note each time you have your car serviced. Entering 'car' in the search would then bring up all those entries plus, of course, any other entries that mention the word 'car'. By using certain keywords you can, of course, make your searches more specific.

Give Memorandum a try, it is quite a useful little program with many, many applications.

Memorandum is on page 30

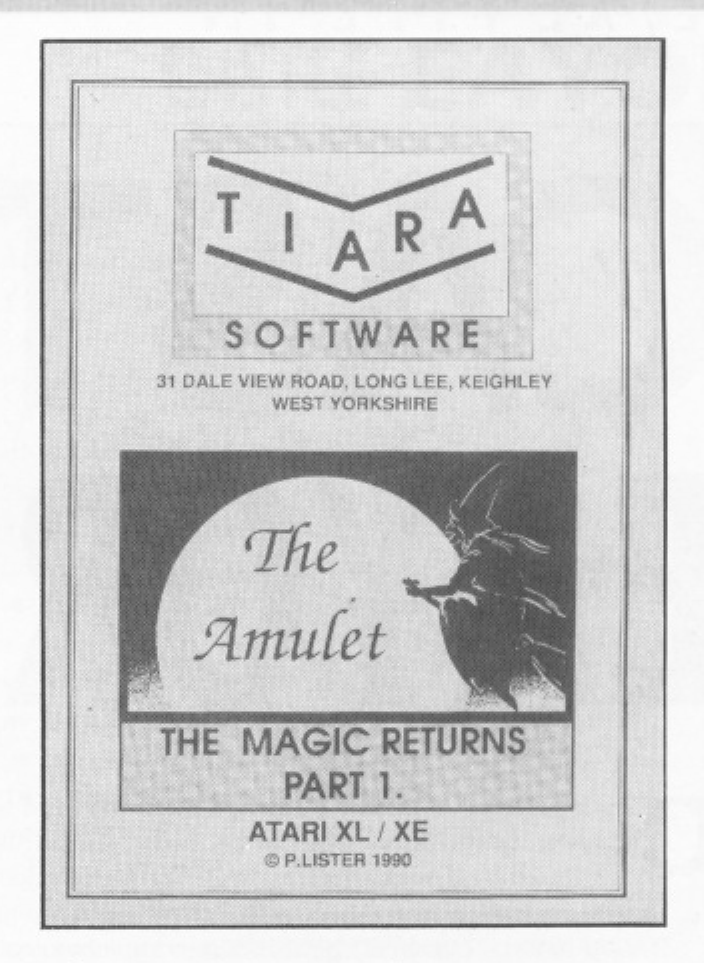
COLOUR CYCLING

```
EX 1 REM ########################################
CP 2 REM #      TURBO COLOUR CYCLING        #
UT 3 REM #              DEMO                #
HP 4 REM #       by Gordon Cameron          #
HC 5 REM # -------------------------------- #
JW 6 REM #  NEW ATARI USER - AUG 90         #
FD 7 REM ########################################
NN 8 REM
ID 80 -------------------------------
IE 90 -------------------------------
DT 100 GO# MAIN
OQ 110 -------------------------------
OS 120 -------------------------------
DA 130 PROC SETUP
TA 131    ? "K":POSITION 8,8:? "GRAPHICS D
   EMO":POSITION 8,10:? " BY G.CAMERON"
AY 132    POSITION 8,12:? "  PLEASE  WAIT
   ":POSITION 10,14:? "  ( APPROX. 25 SEC
   S )"
LI 140    GAP=2
OX 150    NTE=1
CY 160    DIM MYX(360),MYY(360)
KP 170    DIM MYX2(360),MYY2(360)
XI 180    DIM ASSIGN(7,7)
QK 190    DEG
GV 195    REM These lines set up a lookup
          table, which the main program
          consults...Lines 200-250
LT 200    FOR X=0 TO 360 STEP GAP
QO 210      MYX(X)=SIN(X)*COS(X)*30+40
YR 220      MYY(X)=SIN(X)*75+90
OW 230      MYX2(X)=COS(X)*30+40
FY 240      MYY2(X)=SIN(X)*COS(X)*75+90
HE 250    NEXT X
IG 255    REM These lines set up the colou
   r      rotation values, so reducing cal
   c-     ulation in the main program
QI 260    FOR LOOP=1 TO 7
RV 270      READ X
JB 280      ASSIGN(1,LOOP)=X
AD 290    NEXT LOOP
QN 300    FOR LOOP=2 TO 7
AT 310      FOR LOOP2=1 TO 7.
YH 320        TEMP=ASSIGN(LOOP-1,LOOP2)
ED 330        ASSIGN(LOOP,LOOP2)=(TEMP+2)
   MOD 47+33*(TEMP=46)
AA 340      NEXT LOOP2
ZW 350    NEXT LOOP
VX 360 ENDPROC
PE 370 -------------------------------
PG 380 -------------------------------
VD 390 PROC ZAP
VL 400    C=(C+1) MOD 9+2*(C=8)
VO 410 ENDPROC
OV 420 -------------------------------
OX 430 -------------------------------
VW 440 PROC ANIMATE
SH 450    POKE 706,ASSIGN(NTE,1)
TY 460    POKE 707,ASSIGN(NTE,2)
CI 470    SETCOLOR 0,2,ASSIGN(NTE,3)-32
EF 480    SETCOLOR 1,2,ASSIGN(NTE,4)-32
GC 490    SETCOLOR 2,2,ASSIGN(NTE,5)-32
HG 500    SETCOLOR 3,2,ASSIGN(NTE,6)-32
JD 510    SETCOLOR 4,2,ASSIGN(NTE,7)-32
OT 520    NTE=(NTE+1) MOD 8+(NTE=7)
VT 530 ENDPROC
PA 540 -------------------------------
PC 550 -------------------------------
ZT 560 PROC CIRCLES
GK 570    C=2
LU 580    FOR LOOP=RDIUS TO 1 STEP -INC
HZ 590      COLOR C
UM 600      CIRCLE X,Y,LOOP,LOOP*VSCALE
FJ 610      EXEC ZAP
WZ 620      EXEC ANIMATE
ZV 630    NEXT LOOP
VW 640 ENDPROC
PD 650 -------------------------------
PF 660 -------------------------------
LL 670 PROC PLOT
EQ 680    PLOT X-1,Y-3:DRAWTO X+1,Y-3
EK 690    PLOT X-2,Y-2:DRAWTO X+2,Y-2
ZK 700    FOR LOOP=-1 TO 1
FN 710      PLOT X-3,Y+LOOP:DRAWTO X+3,Y+L
   OOP
ZU 720    NEXT LOOP
AF 730    PLOT X-2,Y+2:DRAWTO X+2,Y+2
AP 740    PLOT X-1,Y+3:DRAWTO X+1,Y+3
VZ 750 ENDPROC
PG 760 -------------------------------
PI 770 -------------------------------
LZ 780 PROC TEST
GQ 790    C=2
LV 800    GRAPHICS 10
SR 805    COLOR C:TEXT 0,182,"    BASIC"
YZ 806    EXEC ZAP:EXEC ZAP:EXEC ZAP
JY 807    COLOR C:TEXT 0,0," TURBO"
TZ 810    FOR X=1 TO 40
HE 820      COLOR C:PLOT X,X+10
OO 830      DRAWTO 80-X,X+10
XC 840      DRAWTO 80-X,180-X
HY 850      DRAWTO X,180-X
GG 860      DRAWTO X,X+10
YS 870      FCOLOR C
AJ 880      PAINT X+3,X+10
GB 890      EXEC ZAP
YE 895      EXEC ANIMATE
HB 900    NEXT X
XY 910    X=24:Y=94:RDIUS=10:VSCALE=1:INC=
   1
WM 920    EXEC CIRCLES
HI 930    X=55
WQ 940    EXEC CIRCLES
CZ 950    X=40:Y=136:RDIUS=14
WU 960    EXEC CIRCLES
HP 970    C=5
HO 980    FOR L=0 TO 360 STEP GAP
ID 990      COLOR C
MP 1000       X=TRUNC(MYX(L)):Y=TRUNC(MYY(L
   ))
UU 1010       EXEC PLOT
OK 1020       EXEC ZAP
QR 1030       EXEC ANIMATE
DE 1040    NEXT L
VB 1050    FOR L=0 TO 360 STEP GAP
NX 1060      COLOR C
CH 1070      X=TRUNC(MYX2(L)):Y=TRUNC(MYY2
   (L))
VP 1080      EXEC PLOT
PF 1090      EXEC ZAP
QK 1100      EXEC ANIMATE
CX 1110    NEXT L
YK 1120 ENDPROC
XN 1130 -------------------------------
XQ 1140 -------------------------------
TH 1150 # MAIN
KR 1160 EXEC SETUP
QA 1170 EXEC TEST
KQ 1180 DO
KF 1190    EXEC ANIMATE
LQ 1200 LOOP
XJ 1210 -------------------------------
XM 1220 -------------------------------
QS 1230 DATA 34,36,38,40,42,44,46
```

MEMORANDUM

```
EX 1 REM ####################################
UY 2 REM #          MEMORANDUM          #
AF 3 REM #              by              #
EE 4 REM #        Robert De Letter      #
AU 5 REM #          TURBO BASIC         #
HD 6 REM # ---------------------------- #
JX 7 REM #  NEW ATARI USER - AUG 90     #
FE 8 REM ####################################
NO 9 REM
XO 10 EXEC INIT
XD 20 TRAP 50:OPEN #%1,4,%0,"D:MEMO":TRAP
   40
TA 30 INPUT #%1;B$:A$(LEN(A$)+%1)=B$:GOTO
   30
LK 40 CLOSE #%1:TRAP #MENU:GO# MENU
EM 50 TRAP #MENU:CLOSE #%1:OPEN #%1,8,%0,
   "D:MEMO":CLOSE #%1
IB 60 ------------------------------
GV 70 # MENU
ID 80 GRAPHICS %0:CLOSE #%1:EXEC BREAK:DL
   =DPEEK(560):POKE DL+%3,71:POKE DL+6,6:
   POKE DL+7,6:POKE DL+8,7
QY 90 POKE 710,96:POKE 712,94:POKE 709,12
   :POKE 708,%2:POKE 752,%1
FM 100 POSITION 5,%0:? "MEMORANDUM":POSIT
   ION %3,%1:? "by r.de letter"
JL 110 POSITION 13,5:? "1  ADD":POSITION
   13,7:? "2  DELETE":POSITION 13,9:? "3
    SEARCH":POSITION 13;11:? "4  PRINT"
HG 120 POSITION 13,13:? "5  EXIT"
CF 130 POSITION 11,16:? "(Select choice)"
VR 140 DO
NL 150   GET K
LS 160   IF K=49 THEN GO# ADD
YO 170   IF K=50 THEN GO# DELETE
AN 180   IF K=51 THEN GO# SEARCH
ER 190   IF K=52 THEN GO# PRINT
TX 200   IF K=53 THEN GO# EXIT
QX 210 LOOP
OT 220 ------------------------------
OK 230 # ADD
RK 240 GRAPHICS %0:EXEC BREAK:POKE 752,%1
   :POKE 710,10:POKE 709,%2:POKE 712,80
DB 250 ? :? :? :? "- Press RETURN after a
   n entry.":? "- Press ESC after all ent
   ries."
GJ 260 ? :? UL$:POSITION %0,10:? "┌──────
   ─────────────────────────────┐"
JF 270 POSITION %0,11:? "│
                               │"
JZ 280 POSITION %0,12:? "│  .
                               │"
NX 290 POSITION %0,13:? "└──────────
   ─────────────────────────────┘"
YJ 300 POKE 82,%1:POKE 83,38:POKE 752,%0
MD 310 B$="":POKE 84,11:POKE 85,%2:? CHR$
   (30);:POKE 764,255
BZ 320 GET K:IF K=155 AND B$="" THEN 320
DE 330 IF K=155 THEN 400
OX 340 IF K=27 THEN POKE 82,%2:POKE 83,39
   :GO# MENU
PS 350 IF K=126 AND B$="" THEN 320
SG 360 IF K=126 AND LEN(B$)=38 THEN POSIT
   ION 38,11:? " ";:POKE 85,37:POKE 84,11
   :? CHR$(31);:B$(LEN(B$))="":GOTO 320
ZN 370 IF K=126 THEN ? CHR$(K);:B$(LEN(B$
   ))="":GOTO 320
XX 380 ? CHR$(K);:B$(LEN(B$)+%1)=CHR$(K):
   IF LEN(B$)=75 THEN 410
NQ 390 GOTO 320
YO 400 IF LEN(B$)<75 THEN B$(LEN(B$)+%1)=
   " ":GOTO 400
PE 410 A$(LEN(A$)+%1)=B$:IF LEN(A$)=14625
   :GRAPHICS 0:POKE 752,%1:? :? :? "K
   STRING FULL ! ":?
HK 420   ? "You have to DELETE entries ..
   .":? "or start a new disk.":PAUSE 150:
   GO# MENU
IR 430 ENDIF
AX 440 POSITION %1,11:? ER$:POSITION %1,1
   2:? ER$(%1,38):E=%1:GOTO 310
PB 450 ------------------------------
HY 460 # SEARCH
CE 470 GRAPHICS %0:EXEC BREAK:POKE 752,%1
   :POKE 710,%0:POKE 712,6:POKE 709,10
YW 480 ? :? :? :? "Show all Entries ... o
   r Search ?"
MH 490 REPEAT :GET K
NC 500 UNTIL K=69 OR K=83:TRAP 680
HD 510 IF A$="" THEN CLS :? :? :? "KNO EN
   TRIES ...":PAUSE 100:GO# MENU
HE 520 IF K=69:A=%1:B=75
ZJ 530   CLS :POSITION %2,%0
OC 540   ? A$(A,B):? UL$:A=A+75:B=B+75:IF
    PEEK(84)=21:POSITION %2,22:? "      Pr
   ess a key    -    ESC=MENU     ."
ZS 550     GET KEY:IF KEY=27 THEN GO# MEN
   U
UI 560     GOTO 530:ENDIF
KF 570   GOTO 540:ENDIF
HF 580 IF A$="" THEN 510
OY 590 CLS :POKE 752,%0:? :? :? :? :INPUT
   "OK. give me a word (min.2 letters) .
   ..";C$:N=%1:POKE 752,%1:? ;
XA 600 IF LEN(C$)<%2 THEN 590
XY 610 CLS :POSITION %2,%0
CT 620 I=UINSTR(A$,C$,N):IF I=%0 THEN 680
DG 630 X=I DIV 75:? A$(X*75+%1,X*75+75):?
    UL$
BD 640 IF PEEK(84)=21:POSITION %2,22:? "
       Press a key    -    ESC=MENU     .":G
   ET K:IF K=27 THEN GO# MENU
OS 650   N=X*75+76:GOTO 610
IZ 660 ENDIF
WV 670 N=X*75+76:GOTO 620
CD 680 ? :? "KLIST ENDED...NOT FOUND   Pr
   ess a key-":GET K:TRAP #MENU:GO# MENU
PL 690 ------------------------------
IE 700 # DELETE
HM 710 GRAPHICS %0:POKE 752,%1:EXEC BREAK
   :POKE 710,48:POKE 712,90:POKE 709,12:A
   =%1:B=75:TMP$=""
SK 720 IF A$="" THEN POSITION %2,8:? "K S
   TRING IS EMPTY ! ":PAUSE 120:GO# MENU
EQ 730 POSITION %2,%3:? "┌──────────────
   ─────────────────────────────┐"
PM 740 POSITION %2,4:? "│
                              │"
BN 750 POSITION %2,5:? "└──────────────
   ─────────────────────────────┘"
IF 760 POSITION 7,4:? " DELETE THIS ENTRY
   . (Y/N) ":TRAP 850
BG 770 POSITION %2,7:? UL$
KK 780 POSITION %2,8:? A$(A,B)
YF 790 FOR X=15 TO %0 STEP -0.1:SOUND %0,
   55,10,X:NEXT X
VQ 800 DO
QW 810   GET K:IF K=78:POSITION %2,8:? ER
   $:POSITION %2,9:? ER$(%1,38):TMP$(LEN(
   TMP$)+%1)=A$(A,B):A=A+75:B=B+75
YC 820     GOTO 780:ENDIF
HB 830   IF K=89 THEN E=%1:A=A+75:B=B+75:
   POSITION %2,8:? ER$:POSITION %2,9:? ER
   $(%1,38):GOTO 780
RJ 840 LOOP
TA 850 POSITION %2,9:? "K LIST ENDED ":A$
   =TMP$:TRAP #MENU:PAUSE 120:GO# MENU
PH 860 ------------------------------
MO 870 # PRINT
KP 880 POSITION 4,16:? "Prepare printer .
   .. Press a key":GET K:TRAP #MENU:OPEN
   #%1,8,%0,"P:":A=%1:B=75
VL 890 ? #%1;A$(A,B):? #%1;UL$:A=A+75:B=B
   +75:GOTO 890
OW 900 ------------------------------
DU 910 # EXIT
HC 920 IF E=%0 THEN GRAPHICS %0:CLR :END
MN 930 A=%1:B=75:OPEN #%1,8,%0,"D:MEMO":T
   RAP 950
OJ 940 ? #%1;A$(A,B):A=A+75:B=B+75:GOTO 9
   40
PI 950 TRAP 40000:CLOSE #%1:GRAPHICS %0:C
   LR :END
PI 960 ------------------------------
IZ 970 PROC BREAK
GZ 980   POKE 16,64:POKE 53774,74
WJ 990 ENDPROC
XC 1000 ------------------------------
NT 1010 PROC INIT
XI 1020   DIM B$(75),C$(50),ER$(39),UL$(3
   7),A$((FRE(0)-100)/2),TMP$(FRE(0)-99):
   ER$(%1)=" ":ER$(39)=" ":ER$(%2)=ER$
WB 1030   UL$(%1)="-":UL$(37)="-":UL$(%2)
   =UL$
YO 1040 ENDPROC
```

THE MAGIC RETURNS: PART 1 - THE AMULET



reviewed by John Sweeney

The story begins. *"Many years ago, in the area we now call The Desolate Lands there dwelt a nation born of wizards and witches."* Unfortunately years of war, plus the evil machinations of the dreaded Gadora left only nine mages. They formed the Circle of Nine and defeated Gadora, but now, several generations later, a young witch named Ledora (a reincarnation of Gadora, perhaps?) is causing major trouble, and the Nine have disappeared.

Magic appears to have left the world forever, but rumours say that it could be restored if only someone could search out the key and survive the ordeals of the Northern wastes. Guess who gets the chance to try? That's right! You!

You start the game on a lonely mountainside; death awaits you if you venture east into a dark cave, south into a treacherous marsh, or north across a windy mountainside. So you had better go west! Here you meet a mysterious hermit, If you TALK he will offer you help in return for some fuel for his fire. Unfortunately you have none and don't seem to have any way of getting to somewhere where there might be some! Never fear, the coded hints below will get you started, as well as telling you what to do with the strange ring that the hermit gives you. You will now be able to reach lots more places and find lots more puzzles to solve!

The Amulet is a straight text adventure in the traditional style; most of the time you type in VERB NOUN, e.g. FILL BUCKET, and the game responds with some text telling you the results of your actions.

This is Tiara Software's first offering, so don't expect as polished a product as some of the full price offerings from the long established companies (all of whom appear to have forsaken the 8-bit world!). The programmer, Peter Lister, admits that he learnt a lot by producing The Amulet and Part 2 (The Castle) is going to be even better!

One problem is that The Amulet is quite a large game, and cramming it all in without having some of the compression tools that the bigger companies have developed over the years has meant that there is not enough room to handle all the verbs, nouns and ideas which you may have. So, don't waste time trying to say PUT THE XXXX IN THE LAMP, just say FILL LAMP and it will work (as long as you have the XXXX! - no I am not going to tell you what it is!) and do be sure to try all the nouns you can see in the text - including the location description - for example, at the Oasis, described as a "pool of brackish water", neither EXAMINE POOL nor EXAMINE WATER will work, but EXAMINE OASIS does! (The Oasis, despite being small, does apparently block your way south - you need to get past it - see below for a coded hint.)

Likewise, lack of space prevents the program giving you reasons for some logical inconsistencies - e.g. why CAN'T I use a shovel to propel the Boat, put anything in the bucket, throw things at the demon, look inside the log, call the Carbide Crystal a Crystal rather than a Carbide, etc?

All that aside, as long as you are prepared to accept these little frustrations, you will find the Amulet an absorbing adventure. It has a nice plot line, lots of places to explore, and some interesting little problems to solve. It also has a very fast response time (with short diskette reads for initial descriptions of locations) and a useful instantaneous SAVE to memory as well as to diskette. (Beware though - the memory SAVE is lost if you die completely - so be sure to do some diskette SAVEs as well!)

Do you remember those awful Magnetic Scrolls conversions with the 30 second response times? Despite its limitations The Amulet is infinitely more playable!

It is always nice to see new adventures for the XL/XE, lets hope Tiara Software go on to produce some masterpieces in the future.

HINTS

(replace each letter with the previous letter in the alphabet)

Getting started: DMJNC TDSFF. HFU TUPOF. V. V. O.
Using the Ring: go to the DIJNOFZ. GBDF TPVUI. XFBS SJOH. SVC SJOH.
The Oasis: DSPTT PBTJT.
Yard: Once you have the door open: FYBNJOF EPPS.
Bucket: TIBLF DMPBL.
Marsh: XFBS DMPBL.

- ***GAMEPLAY** - Standard text adventure. Limited vocabulary, good response time*
- ***SOUND AND SIGHT** - Nice legible character set*
- ***VERDICT** - A little primitive in places, but not a bad first offering from a new company. Well worth a go at the budget price*

The Magic Returns: Part 1 - The Amulet
Publisher - Tiara Software
Price - £9.95 (disk only)

CASTLE EAYOR

Castle Eayor is situated on top of a mountain and is constantly surrounded by dark dreary clouds. It is inhabited by a mad scientist, Prof. Von Der Nudelkopf and his humble servant, Omptitudolous IV. The professor, while experimenting with dangerous chemicals, inadvertently turned himself into a five metre tall monster with seven heads, twenty legs and a severe headache. Obviously, somebody must find the antidote and return Prof. Von Der Nudelkopf back to his normal insane self. The only person who can do this is Omptitudolous IV. You must guide him through the many dangers of the laboratory of Castle Eayor and collect the bottles of antidote which lie scattered throughout.

GAMEPLAY

On the screen you will be located at the bottom left corner. You may notice that parts of the floor disappear, and that there is electricity flowing from the light bulbs. Falling down the holes in the floors is not good for the metabolism and the electricity is not good for the hair-do, so it is advisable to avoid them. As you walk across you will see underneath you a piece of the framework has an arrow on it. This is a teleporter. It will teleport you up one level of the screen but, unfortunately, it is not working properly so it could teleport you anywhere on the next level. As you may have guessed if you get teleported onto a piece of framework that isn't there, well, then you go down to the bottom level the hard way! To activate the teleporter, press fire while standing over it (make sure it's there when you do!). When you have collected three bottles of antidote, go to the top right corner of the screen to be teleported to the next screen.

by Trevor Prendergast

CONTROL

Joystick controls left and right movement
Fire activates teleporters
On the title screen, press start to begin game

```
EH 0 REM *******************************
AA 1 REM *        CASTLE EAYOR         *
LQ 2 REM *            by               *
CX 3 REM *     TREVOR PRENDERGAST      *
AB 4 REM *-----------------------------*
YW 5 REM *  NEW ATARI USER - ENGLAND   *
EN 6 REM *******************************
IW 10 POKE 559,0:GOSUB 1000:GOTO 6000
LH 15 SCREEN=2000:MX=0:MY=20:TIME=15:LIFE
   =5:SC=0:BOT=0:LEV=1
HP 20 GRAPHICS 17:POKE 756,CHB/256
VL 30 FOR X=0 TO 3:SOUND X,0,0,0:NEXT X
KS 40 MX=0:MY=20:TIME=20:POSITION 0,0
ZF 42 POKE 711,143:POKE 709,255:POKE 710,
   143:POKE 712,0
MC 45 GOSUB SCREEN
RC 50 POSITION 4,23:? #6;"BOTTLES "
DG 60 POKE 20,0
IE 99 REM       MAIN LOOP
WZ 100 ST=STICK(0)
WP 110 IF ST=7 THEN GOSUB 500:GOTO 150
WV 120 IF ST=11 THEN GOSUB 600:GOTO 150
JV 150 IF  NOT PEEK(644) THEN GOSUB 800
NT 160 IF PEEK(20)<150 THEN POKE 709,0:PO
   KE 710,143:SOUND 1,200,12,3
UI 170 IF PEEK(20)>150 THEN POKE 709,255:
   POKE 710,0:SOUND 1,227,12,3
AR 180 IF TIME<10 THEN POSITION 16,1:? #6
   ;"0";INT(TIME);:GOTO 190
FG 185 POSITION 16,1:? #6;INT(TIME)
TC 190 IF TIME=INT(TIME) THEN FOR TM=15 T
   O 0 STEP -1:SOUND 3,6,6,TM:NEXT TM:SOU
   ND 3,0,0,0
EG 195 TIME=TIME-0.04
DX 200 LOCATE MX,MY+2,FLOOR:IF (FLOOR=167
    OR FLOOR=171) AND PEEK(710)=0 THEN GO
   TO 1700
EQ 205 IF INT(TIME)=0 THEN GOTO 4000
WH 210 POSITION 2,1:? #6;SC:POSITION 10,1
   :? #6;LIFE
ZW 215 IF (MY=4 AND BOT)=3) AND MX=19 THE
   N GOTO 3000
TI 220 POSITION 12,23:? #6;BOT;
LI 300 GOTO 100
NW 499 REM       MOVE LEFT
JQ 500 GOSUB 555:M$="%("
```

```
UF 505 POSITION MX,MY:? #6;" ":POSITION M
   X,MY+1:? #6;" "
JM 507 MX=MX+1:IF MX>19 THEN MX=19
KS 510 POSITION MX,MY:? #6;"%":POSITION M
   X,MY+1:? #6;"&"
AK 515 FOR G=15 TO 0 STEP -1:SOUND 0,100,
   8,G:NEXT G
OU 520 POSITION MX,MY:? #6;"%":POSITION M
   X,MY+1:? #6;"("
IY 530 FOR G=15 TO 0 STEP -1:SOUND 0,10,8
   ,G:NEXT G
ZL 550 RETURN
II 555 LOCATE MX+(MX<19),MY,THING
SM 560 IF THING=42 THEN GOSUB 900:RETURN
PK 565 IF (THING=29 AND PEEK(709)<>0) THE
   N POP :POP :GOTO 1500
ZT 590 RETURN
HZ 599 REM         MOVE RIGHT
JK 600 GOSUB 655:M$="#)"
UG 605 POSITION MX,MY:? #6;" ":POSITION M
   X,MY+1:? #6;" "
AO 607 MX=MX-1:IF MX<0 THEN MX=0
ET 610 POSITION MX,MY:? #6;"#":POSITION M
   X,MY+1:? #6;"$"
YK 615 FOR G=15 TO 0 STEP -1:SOUND 0,75,8
   ,G:NEXT G
OV 620 POSITION MX,MY:? #6;"#":POSITION M
   X,MY+1:? #6;")"
SK 630 FOR G=15 TO 0 STEP -1:SOUND 0,80,8
   ,G:NEXT G
ZM 650 RETURN
TC 655 LOCATE MX-(MX>1),MY,THING
SN 660 IF THING=42 THEN GOSUB 900:RETURN
WD 665 IF (THING=29 AND PEEK(709)<>0) THE
   N POP :POP :GOTO 1530
ZU 690 RETURN
OA 799 REM          GOING UP
UH 800 LOCATE MX,MY+2,LIFT:IF LIFT=139 OR
    LIFT=171 THEN GOTO 810
ZT 805 RETURN
TV 810 POSITION MX,MY:? #6;" ":POSITION M
   X,MY+1:? #6;" "
IL 815 MY=MY-4:MX=INT(RND(0)*19)
RH 817 FOR X=0 TO 50:SOUND 0,RND(0)*25,10
   ,15:NEXT X:SOUND 0,0,0,0
IF 820 POSITION MX,MY:? #6;M$(1,1):POSITI
   ON MX,MY+1:? #6;M$(2)
ZK 830 RETURN
AI 900 SC=SC+5:BOT=BOT+1:RETURN
KP 1000 REM    CHARACTER DEFINITIONS
HR 1005 N=11:CHO=57344:CHB=(PEEK(106)-8)*
   256
NQ 1010 DIM A$(N),M$(2),WORD$(20):A$="#$%
   &()'*=+-"
IO 1015 POKE 756,CHB/256
XR 1020 FOR X=0 TO 511:POKE CHB+X,PEEK(CH
   O+X):NEXT X
UN 1030 FOR X=1 TO N
FD 1035 CHAD=CHB+(ASC(A$(X))-32)*8
XL 1040 FOR D=0 TO 7
TM 1050 READ I
LA 1060 POKE CHAD+D,I
DH 1070 NEXT D
LW 1080 NEXT X
HJ 1085 GOSUB 8000:RETURN
SV 1100 DATA 28,14,30,6,30,12,26,26
YQ 1110 DATA 26,26,30,14,12,18,161,66
QD 1120 DATA 120,112,120,96,120,48,88,88
PW 1130 DATA 88,88,120,112,48,72,133,66
NJ 1140 DATA 88,88,120,112,32,32,32,48
YK 1150 DATA 26,26,30,14,4,4,4,12
NP 1160 DATA 255,24,24,24,24,24,24,255
RK 1170 DATA 24,0,24,24,60,60,60,60
TW 1180 DATA 16,32,16,8,16,32,16,0
OQ 1190 DATA 255,231,195,129,231,231,231,
   255
ND 1200 DATA 24,24,24,24,24,60,126,255
DE 1499 REM        HIT BY LIGHTNING
OU 1500 POSITION MX,MY:? #6;" ":POSITION
   MX,MY+1:? #6;" "
XS 1510 POSITION MX+1,MY:? #6;"%":POSITIO
   N MX+1,MY+1:? #6;"(":GOTO 1550
PD 1530 POSITION MX,MY:? #6;" ":POSITION
   MX,MY+1:? #6;" "
OE 1540 POSITION MX-1,MY:? #6;"#":POSITIO
   N MX-1,MY+1:? #6;")"
HG 1550 FOR X=0 TO 255:SOUND 0,X,2,10:SOU
   ND 1,X,12,10:POKE 712,X:NEXT X
UV 1560 SOUND 0,0,0,0:SOUND 1,0,0,0
UD 1570 LIFE=LIFE-1:IF LIFE=0 THEN GOTO 5
   000
ML 1580 BOT=0:GOTO 40
AA 1699 REM        ALL FALL DOWN!
KH 1700 FOR POS=MY TO 22
XO 1710 POSITION MX,POS:? #6;M$(1,1):POSI
   TION MX,POS+1:? #6;M$(2)
YF 1720 POSITION MX,POS-1:? #6;" "
FS 1730 SOUND 0,POS*8,10,15:FOR LK=0 TO 2
   0:NEXT LK
IQ 1750 NEXT POS
YA 1755 POSITION MX,POS-1:? #6;" ":POSITI
   ON MX,POS:? #6;" "
LK 1760 FOR GH=45 TO 0 STEP -1
UB 1770 SOUND 0,10,8,GH/3
ML 1780 NEXT GH
TR 1810 LIFE=LIFE-1:IF LIFE=0 THEN GOTO 5
   000
LZ 1820 BOT=0:GOTO 40
XQ 1999 REM           SCREEN #1
VV 2000 ? #6;" SOCRE  LIVES  TIME ";
IB 2002 ? #6;"  00     00     00  ";
UL 2004 ? #6;"\\\\\\\\\\\\\\\\\\\\";
ZU 2006 ? #6;"    -     -         ";
DI 2008 ? #6;"    ↓     ↓         ";
```

continued

CASTLE EAYOR

```
CF 2010 ? #6;"     ↓     ↓          ";
JM 2012 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
NC 2014 ? #6;" -          -      -  ";
IW 2016 ? #6;" ↓          ↓*     ↓  ";
AI 2018 ? #6;" ↓          ↓      ↓  ";
AB 2020 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
IK 2022 ? #6;"                -   - ";
LG 2024 ? #6;"               ↓ *  ↓ ";
BE 2026 ? #6;"               ↓    ↓ ";
KN 2028 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
BS 2030 ? #6;"   -           -      ";
LU 2032 ? #6;"   ↓          * ↓     ";
CM 2034 ? #6;"   ↓            ↓     ";
DS 2036 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
AY 2038 ? #6;"    -    -            ";
MB 2040 ? #6;"%   ↓  *  ↓           ";
GL 2042 ? #6;"(   ↓     ↓           ";
ZR 2044 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
BB 2090 RETURN
YB 2099 REM            SCREEN #2
VX 2100 ? #6;" SOCRE   LIVES   TIME ";
ID 2102 ? #6;"  00      00      00  ";
UN 2104 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
ZW 2106 ? #6;"    -    -            ";
DK 2108 ? #6;"    ↓    ↓            ";
CH 2110 ? #6;"    ↓    ↓            ";
GU 2112 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
ZE 2114 ? #6;"  -        -          ";
MO 2116 ? #6;"  ↓        ↓ *        ";
DQ 2118 ? #6;"  ↓        ↓          ";
QX 2120 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
HM 2122 ? #6;" -  -    -     -   -  ";
CC 2124 ? #6;" ↓  ↓ *  ↓     ↓   ↓  ";
VM 2126 ? #6;" ↓  ↓    ↓     ↓   ↓  ";
XB 2128 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
AU 2130 ? #6;"      -    -          ";
IQ 2132 ? #6;"     *↓    ↓          ";
CU 2134 ? #6;"      ↓    ↓          ";
AS 2136 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
NA 2138 ? #6;"  -     -        -    ";
NP 2140 ? #6;"% ↓     ↓        ↓ *  ";
DT 2142 ? #6;"( ↓     ↓        ↓    ";
AN 2144 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
BM 2146 RETURN
ZF 2199 REM            SCREEN #3
VZ 2200 ? #6;" SOCRE   LIVES   TIME ";
IF 2202 ? #6;"  00      00      00  ";
UP 2204 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
DY 2206 ? #6;"   -              -   ";
CO 2208 ? #6;"   ↓              ↓   ";
BL 2210 ? #6;"   ↓              ↓   ";
DI 2212 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
KG 2214 ? #6;" -    -        -      ";
MU 2216 ? #6;" ↓    ↓        ↓    * ";
BE 2218 ? #6;" ↓    ↓        ↓      ";
YR 2220 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
IO 2222 ? #6;" -  -     -    -    - ";
ZQ 2224 ? #6;"*↓  ↓     ↓    ↓    ↓ ";
VI 2226 ? #6;" ↓  ↓     ↓    ↓    ↓ ";
JD 2228 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
HW 2230 ? #6;"- - - - - - - - - - - ";
IY 2232 ? #6;"↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ";
JG 2234 ? #6;"↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ";
CY 2236 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
OP 2238 ? #6;"      - -       ---   ";
TG 2240 ? #6;"%     ↓ ↓       ↓↓↓ **";
XM 2242 ? #6;"(     ↓ ↓       ↓↓↓   ";
LJ 2244 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
BF 2290 RETURN
AJ 2299 REM            SCREEN #4
WB 2300 ? #6;" SOCRE   LIVES   TIME ";
IH 2302 ? #6;"  00      00      00  ";
UR 2304 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
SA 2306 ? #6;"           -          ";
PK 2308 ? #6;"           ↓    *     ";
EH 2310 ? #6;"           ↓          ";
VC 2312 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
MV 2314 ? #6;"       -   -   -      ";
AJ 2316 ? #6;"       ↓   ↓   ↓      ";
AR 2318 ? #6;"       ↓   ↓   ↓      ";
OD 2320 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
MQ 2322 ? #6;"  -        -       -  ";
JK 2324 ? #6;"  ↓        ↓  *    ↓  ";
AM 2326 ? #6;"  ↓        ↓       ↓  ";
YD 2328 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
ML 2330 ? #6;" -         -       -  ";
PT 2332 ? #6;"  ↓ *      ↓    *  ↓  ";
AH 2334 ? #6;"  ↓        ↓       ↓  ";
XA 2336 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
OE 2338 ? #6;"       -    -    -    ";
MJ 2340 ? #6;"%      ↓    ↓    ↓*   ";
DR 2342 ? #6;"(      ↓    ↓    ↓    ";
UF 2344 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
BH 2390 RETURN
BN 2399 REM            SCREEN #5
WD 2400 ? #6;" SOCRE   LIVES   TIME ";
IJ 2402 ? #6;"  00      00      00  ";
UT 2404 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
YC 2406 ? #6;" - - - - - - - - - -  ";
WC 2408 ? #6;" ↓ ↓ ↓ ↓ ↓ ↓ ↓*↓ ↓    ";
KZ 2410 ? #6;" ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓    ";
NM 2412 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
MX 2414 ? #6;"      -    -    -     ";
AL 2416 ? #6;"      ↓    ↓    ↓     ";
AT 2418 ? #6;"      ↓    ↓    ↓     ";
OF 2420 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
XF 2422 ? #6;" - -       -      --- ";
RV 2424 ? #6;" ↓ ↓       ↓      ↓↓↓ ";
WT 2426 ? #6;"*↓ ↓       ↓      ↓↓↓ ";
HP 2428 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
ZN 2430 ? #6;"  -          -        ";
JF 2432 ? #6;"  ↓ *        ↓        ";
DJ 2434 ? #6;"  ↓          ↓        ";
JW 2436 ? #6;"\\\\\\\\\\\\\\\\\\\\\\\\";
OT 2438 ? #6;"      -    -    -  - - ";
TA 2440 ? #6;"%     ↓    ↓    ↓ ↓*↓*";
XQ 2442 ? #6;"(     ↓    ↓    ↓  ↓ ↓ ";
```

```
AL 2444 ? #6;"\\\'\'\'\\\'\\\f\'''";
BJ 2490 RETURN
VY 2999 REM         LEVEL COMPLETED
JH 3000 POSITION MX,MY:? #6;" ":POSITION
    MX,MY+1:? #6;" ";
BX 3001 FOR X=0 TO 50:SOUND 0,RND(0)*25,1
    0,15:NEXT X:SOUND 0,0,0,0
UE 3002 GRAPHICS 18:SETCOLOR 0,4,15:SETCO
    LOR 1,8,15:SETCOLOR 3,13,15
JM 3006 IF SCREEN=2400 THEN POP :GOTO 450
    0
QF 3008 FOR X=0 TO 3:SOUND X,0,0,0:NEXT X
PQ 3010 WORD$="well done►":T=3
IT 3020 FOR X=1 TO LEN(WORD$)
HB 3030 A$=WORD$(X,X):T=T+1
XM 3040 FOR DOWN=1 TO 4
LZ 3050 POSITION T,DOWN:? #6;A$
SE 3060 POSITION T,DOWN-1:? #6;" "
VQ 3070 SOUND 0,DOWN*50,10,10
UP 3080 FOR G=0 TO 15:NEXT G
CD 3090 NEXT DOWN:NEXT X
UZ 3100 WORD$="LEVEL   COMPLETED"
LN 3110 WORD$(7,8)=STR$(LEV):T=0
IV 3120 FOR X=1 TO LEN(WORD$)
HD 3130 A$=WORD$(X,X):T=T+1
LA 3140 FOR ACROSS=18 TO T STEP -1
YE 3150 POSITION ACROSS,6:? #6;A$;" ";
TY 3160 SOUND 0,ACROSS,2,10
AN 3180 NEXT ACROSS:NEXT X
FV 3190 WORD$="prepare for level  "
NZ 3200 WORD$(19,20)=CHR$((ASC(STR$(LEV+1
    ))-32)+128):T=-1
IU 3210 FOR X=1 TO LEN(WORD$)
HC 3220 A$=WORD$(X,X):T=T+1
VE 3230 FOR UP=10 TO 8 STEP -1
ZI 3240 POSITION T,UP:? #6;A$
WX 3250 POSITION T,UP+1:? #6;" "
CU 3260 SOUND 0,UP*50,10,15
UC 3270 FOR G=0 TO 5:NEXT G
QC 3280 NEXT UP:NEXT X
QE 3290 FOR X=0 TO 3:SOUND X,0,0,0:NEXT X
SO 3300 FOR S=100 TO 254 STEP 1
YR 3310 SOUND 0,S,10,15:SOUND 1,S+1,10,15
JJ 3320 NEXT S
WL 3330 FOR G=0 TO 250:NEXT G
YM 3340 SCREEN=SCREEN+100:BOT=0:LEV=LEV+1
    :GOTO 20
YG 3999 REM           TIME UP
FC 4000 POSITION 16,1:? #6;"00"
SH 4005 POSITION 4,12:? #6;"OUT OF TIME!"
TF 4010 FOR G=0 TO 300:NEXT G
NZ 4020 LIFE=LIFE-1:IF LIFE=0 THEN 5000
QL 4030 GOTO 40
FG 4499 REM         GAME COMPLETED
AY 4500 GRAPHICS 0:POKE 710,0:POKE 709,15
    :POKE 752,1:POKE 82,0
TW 4510 POSITION 0,0
KA 4520 ? "            CONGRATULATIONS"
QC 4530 ? "↓↓ OMPTITUDOLOUS IS GRATEFUL T
    O YOU FOR"
FH 4540 ? " HELPING HIM ESCAPE.BUT HE RE
    MEMBERS"
AX 4550 ? " THAT HE LEFT THE GAS ON IN TH
    E CASTLE "
JH 4560 ? "AND WILL NEED YOUR HELP TO GET
     IN AGAIN"
CJ 4565 ? "      YES FOLKS,BACK TO SQUAR
    E 1"
LO 4570 FOR GH=0 TO 500
TY 4575 IF PEEK(764)<>255 THEN POP :GOTO
    6000
QM 4580 NEXT GH:GOTO 6000
IS 4999 REM         GAME OVER
TQ 5000 GRAPHICS 18:POSITION 2,5:? #6;"YO
    U'RE DEAD!!!!":POKE 710,15
HA 5005 NN=50:FOR G=1 TO 2:GOSUB 5500:NEX
    T G
BR 5010 NN=20:GOSUB 5500
DM 5015 NN=50:GOSUB 5500
TO 5020 SOUND 1,193,10,15:SOUND 0,194,10,
    15:FOR X=0 TO 40:NEXT X:SOUND 1,0,0,0:
    SOUND 0,0,0,0
KV 5030 SOUND 0,218,10,15:SOUND 1,217,10,
    15:FOR X=0 TO 20:NEXT X:SOUND 0,0,0,0:
    SOUND 1,0,0,0
HJ 5035 NN=50:FOR G=1 TO 2:GOSUB 5500:NEX
    T G
CA 5040 NN=20:GOSUB 5500
WW 5055 NN=100:GOSUB 5500
OK 5060 POSITION 3,8:? #6;"YOUR SCORE=";S
    C
QV 5070 FOR X=0 TO 200:NEXT X
PW 5090 GOTO 6000
YC 5500 SOUND 1,243,10,15:SOUND 0,244,10,
    15:FOR X=0 TO NN:NEXT X:SOUND 0,0,0,0:
    SOUND 1,0,0,0
AQ 5510 RETURN
RQ 5999 REM         TITLE SCREEN
WJ 6000 GRAPHICS 17:DL=PEEK(560)+PEEK(561
    )*256:POKE 756,CHB/256
MS 6010 SETCOLOR 0,2,15:SETCOLOR 1,6,15:S
    ETCOLOR 2,8,15:SETCOLOR 3,13,15
OK 6020 POKE DL+7,135:POKE DL+15,135:POKE
     DL+24,135:POKE DL+23,135
EP 6030 POSITION 0,2:? #6;"    castle eay
    or"
GZ 6040 POSITION 8,5:? #6;"BY"
RY 6050 POSITION 1,10:? #6;"TREVOR PRENDE
    RGAST"
KO 6060 FOR X=0 TO 19:POSITION X,20:? #6;
    "\";:NEXT X
VM 6070 POSITION 4,13:? #6;"INTRODUCING"
TQ 6075 POSITION 0,16:? #6;" omptitudolou
    s iv"
BU 6080 MX=0:MY=18
GK 6085 POSITION 4,21:? #6;"press start"
FA 6100 FOR X=0 TO 18:GOSUB 500:GOSUB 681
```

continued ☛

CASTLE EAYOR

```
   0:NEXT X
SO 6105 POSITION 0,18:? #6;"  ":POSITION 0
   ,19:? #6;"  "
EJ 6120 FOR X=18 TO 0 STEP -1:GOSUB 600:G
   OSUB 6810:NEXT X
RE 6130 SETCOLOR 0,PEEK(20),15:GOSUB 6810
   :GOTO 6080
HX 6810 IF PEEK(53279)=6 THEN POP :GOTO 1
   5
BA 6820 RETURN
TP 7999 REM       INTRODUCTION
RP 8000 GRAPHICS 0:POKE 82,0:POKE 709,0:P
   OKE 710,0:POKE 752,1
NP 8010 ?
FC 8020 POSITION 6,10
TZ 8030 ? " EXILLIP SOFTWARE PRESENTS"
CV 8040 GOSUB 8500
FQ 8050 GOSUB 8550
DO 8060 GOSUB 8600
LZ 8070 POSITION 3,10:? " A TREVOR PRENDE
   RGAST PRODUCTION"
OK 8080 GOSUB 8500:GOSUB 8550:GOSUB 8600
XQ 8090 GRAPHICS 17:POKE 709,0
LY 8100 POSITION 4,10:? #6;"castle eayor"
CO 8110 GOSUB 8500
GG 8120 SOUND 0,255,10,10:SOUND 1,254,10,
   10
FF 8130 SOUND 2,253,10,10:POKE 53768,1
PG 8140 FOR GH=0 TO 750:NEXT GH
WE 8150 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
   2,0,0,0:POKE 53768,0:RETURN
SX 8500 FOR X=0 TO 15:POKE 709,X:FOR L=0
   TO 2:NEXT L:NEXT X:RETURN
FF 8550 FOR ZXC=1 TO 100:NEXT ZXC:RETURN
SP 8600 FOR X=15 TO 0 STEP -1:POKE 709,X:
   FOR L=0 TO 2:NEXT L:NEXT X:RETURN
BO 8605 REM          PHEW!
```

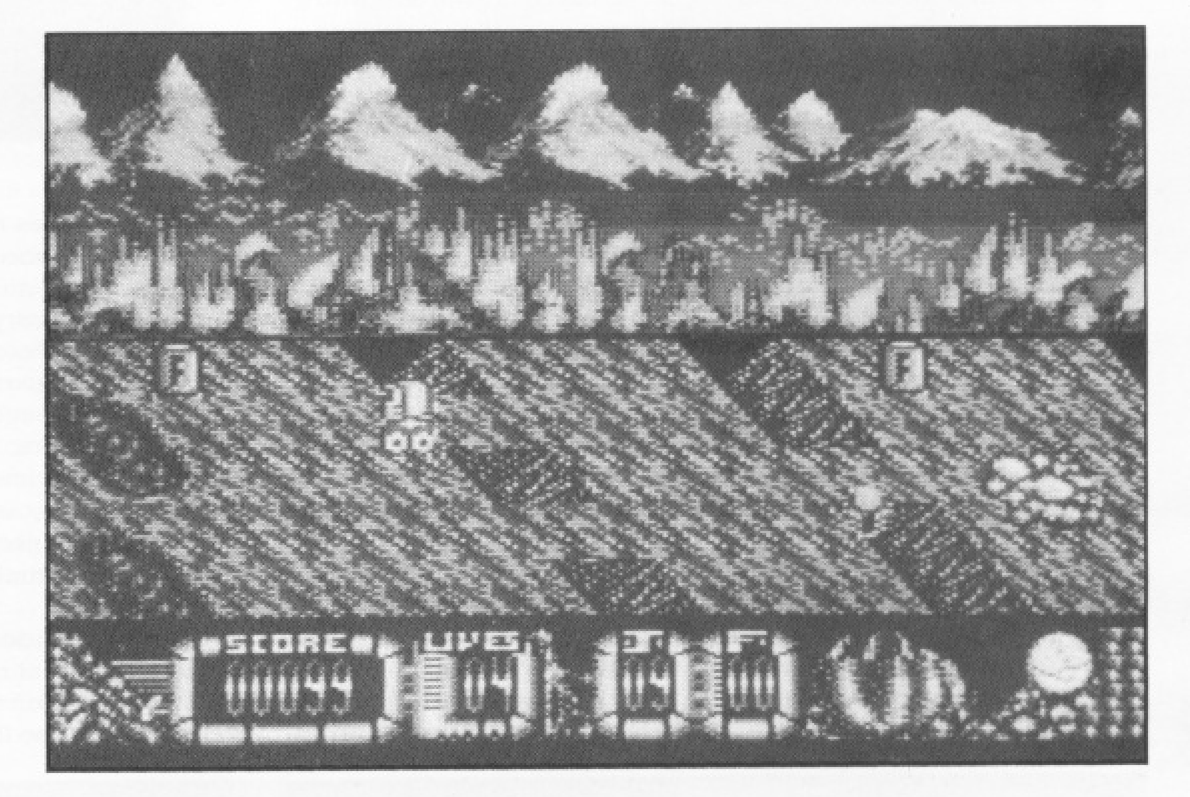
PLASTRON

Anyone who travelled to the Atari '90 show hoping to find more than a feint trace of the 8-bit would have been rather disappointed. Atari were keen to show off their boldly(?) styled TT and had stands dedicated to the Mega ST range, STE, ATW, Portfolio and Lynx consoles but there was no sign of the neglected XE hardware and no new software on the 'Action Games' label. A few dealers had boxes of budget tapes to dispose of, BAPAUG had everyone interested in a rare 1200XL and, of course, PAGE 6 had lots of goodies for everyone, but the only company offering anything really new was Harlequin who were showing, as promised, the first product in their exciting new range of full-priced 8-bit games - PLASTRON.

Harlequin tell us that Plastron is a tiny planet that also happens to be the richest known source of fossil fuels in the Universe. The "Omni-Corp" have mined Plastron for over five centuries and consequently grown into the most powerful force of the Federated Galaxy - at the expense of less fortunate planets. In a bid to undermine the Omni-Corp's escalating strength, the smaller nations have banded together and hired a group of pirates to steal fuel from Plastron. Hence, a small space ship enters the planet's orbit and despatches a shuttle to its surface. Surface Scavenger One embarks on a dangerous mission to collect fuel rods from the zealously defended mine fields, with intent to transport them to a supply ship at the end of every zone. In command of the shuttle, a lone pilot nervously grips the controls in preparation for battle.

Title:	**PLASTRON**
Publisher:	**Harlequin**
Price:	**£7.99 cassette**
	£9.99 disk
Players:	**1**

Reviewed by Paul Rixon



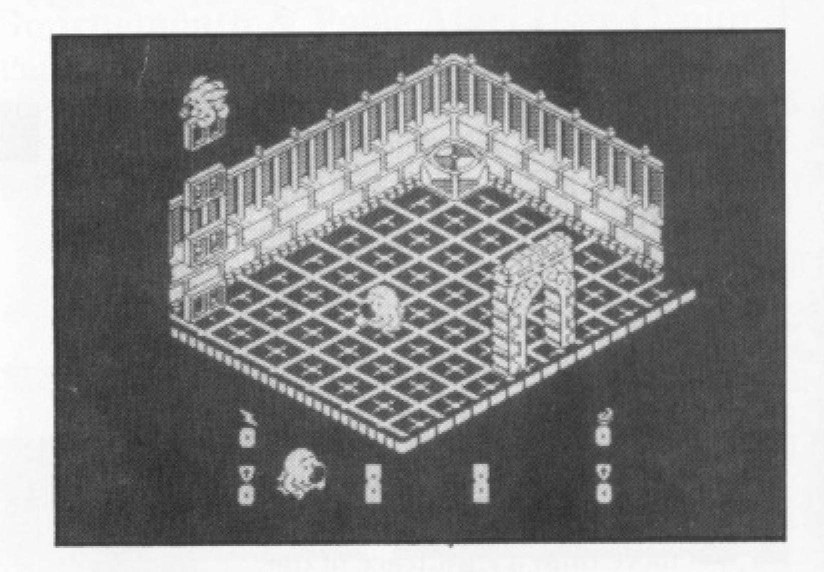
'an enjoyable and worthwhile challenge'

The future is in your hands!

The opening screen to Plastron features five bouncing spheres behind an attractively shaded title. It's almost a graphics demo in itself, but there's better to come once you commence the game. The action unfolds on a horizontally scrolling playfield with well-crafted backdrops of appropriate planetary scenery. The passage through Plastron is a hazardous one, since the zones are plagued by potholes, ditches, ramps, plants and other troublesome obstacles. These make it all too easy to crash your tiny buggy - which, to be honest, is more like a teapot on wheels than a space-age attack craft! Fortunately, the inevitable mishaps are mainly a cause of frustration and do not cost you valuable lives, but you must also evade more dangerous missiles dropped from overhead craft, birds and other land-based nasties. To assist you in avoiding the multitude of adversaries, your buggy is equipped with a limited hopping ability which is replenished by locating and collecting appropriate canisters. Your objective in each zone is to collect a pre-determined number of fuel rods - as soon as you've achieved this, the supply ship whisks you away to the following zone - where more interesting graphics, and even nastier irritants await your arrival.

On the face of it, Plastron poses a relatively straightforward challenge, but the combination of good graphics, excellent music (a catchy composition by Richard Munns) and addictive gameplay make it an enjoyable and worthwhile challenge. It's one of those programs that initially appears too simple to appeal - until you realise the time that you originally promised to have 'just one more go'! Overall, Harlequin have made an excellent effort with their first Atari release, and if the forthcoming software is of a similar standard then Zeppelin Games are going to be in for some stiff competition!

HEAD OVER HEELS



Ocean Software are infamous for their ignorance of the Atari. Despite periodic rumours of Atari conversions, Ocean have seldom included the 8-bit in their busy release schedule. Things looked set to change in 1987 when HEAD OVER HEELS was completed in Atari format and even passed to one magazine for review. Alas, for reasons known only to themselves, Ocean refused to release it. To be honest, I did not have high hopes that Ocean's budget 'Hit Squad' label would signal any change in policy - but gladly, I was wrong. It seems that budget mania is too lucrative even for Ocean to resist, and Head Over Heels has at last seen the light of day!

Head Over Heels is a 3-D maze-based arcade adventure bearing more than a passing resemblance to Firebird's popular Chimera. The novelty is that you have control over two characters, Head - who is naturally the brains of the operation - and Heels - the athletic member of the duo. The partners begin the game imprisoned in the castle headquarters of Blacktooth, and your aim is to guide them towards a market place where they join forces for the main phase of the mission, involving the search for lost crowns on four distant planets. The plot isn't exactly crystal clear, but the game's so addictive that it hardly seems to matter!

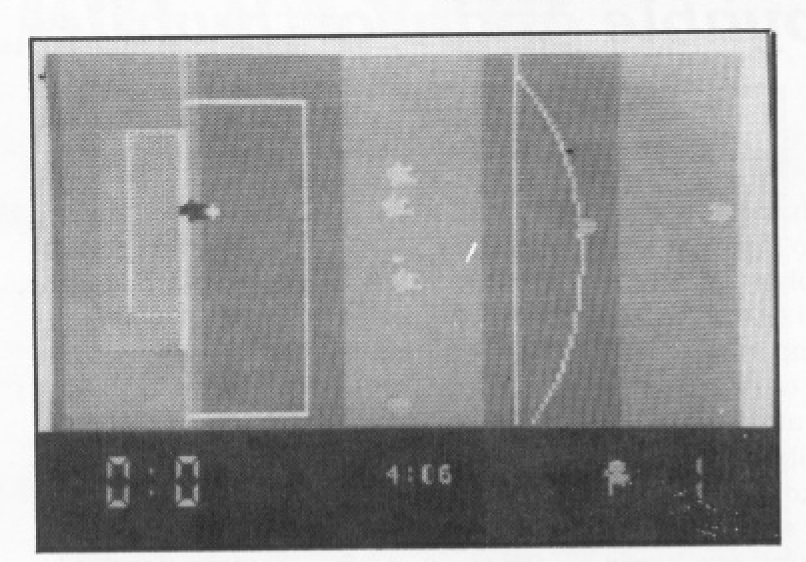
The shift key switches your control between the two characters, who face a series of challenging puzzles before they can hope to meet up with each other. Heels must find a bag to help him carry useful artifacts, whilst Head must search for a hooter which he uses to launch doughnuts at attacking monsters. Teleports, springs, switches and conveyor belts are just a small selection of the objects that the pair will eventually encounter.

Without exaggeration, the game is a graphical masterpiece. Each location is intricately drawn in the finest detail - all credit to the artist for a magnificent achievement. There's liberal animation too, and an abundance of sound effects - although these can be adjusted to suit your own preference. I can't understand why Ocean wouldn't release the game three years ago - there's no doubt, it's the best I've played for a very long time. With excellent gameplay, superb graphics, great sound and a ridiculous price tag of under three pounds, Head Over Heels is definitely an essential purchase!

Title:	**HEAD OVER HEELS**
Publisher:	**The Hit Squad (Ocean)**
Price:	**£2.99 cassette**
Players:	**1**
Loading:	**17'15"**

Reviewed by Paul Rixon

KICK OFF



At the time of writing, the football competition is just taking shape. England have drawn in a goal-less match with Holland, West Germany have thrashed the United Arab Emirates, and The Cameroon seem to have a better chance than many of collecting the World Cup! Whatever the eventual outcome, two things seem certain - Argentina aren't going to get anywhere near the final, and Anco (the software company) have made a proverbial pig's ear of marketing the Atari version of KICK OFF, a soccer simulation already highly acclaimed on other machines. There's been no advertising, no press release and no review copy - in fact, no indication of its existence! How can Anco hope to improve their 8-bit sales if they don't announce releases?

Anyway, Kick Off is definitely available and conspicuous in physical terms at least - its packaging is enormous! The instruction leaflet inside is unfortunately not of equally giant proportion, and the page sequence seems to have become muddled at the printers, but with some effort you will find everything you need to know. The game is played via a scrolling window giving a birds-eye view of the pitch. The players are represented by small coloured 'blobs', highlighted in white once a player is in possession of the ball - it's not exactly realism taken to extreme, but the general approach is surprisingly successful.

The main menu offers several options, the first giving you a chance to test the joystick movements and improve your handling skills. There's a separate option for practising penalties, and another to choose the match duration. Each game is invisibly supervised by one of twelve referees, who have varying factors of experience and leniency, plus the power to issue yellow cards - and red ones - to either team. The computer supports corner kicks, throw-ins, tackles, fouls, tired players, injuries and a lot more besides. For expert players, there is an eight-strong league competition lasting fourteen weeks and featuring international players with differing strengths and abilities. A save game feature is included here too.

Despite Anco's reluctance to promote it, Kick Off is easily the most detailed soccer simulation released on the Atari to date. The graphics aren't stunning but the game has sufficient depth to compensate. If you're looking for a football game, this is certainly one to consider.

Title:	**KICK OFF**
Publisher:	**Anco**
Price:	**£8.95 cassette/ £12.95 disk**
Players:	**1/2**

Reviewed by Paul Rixon

ZERO WAR

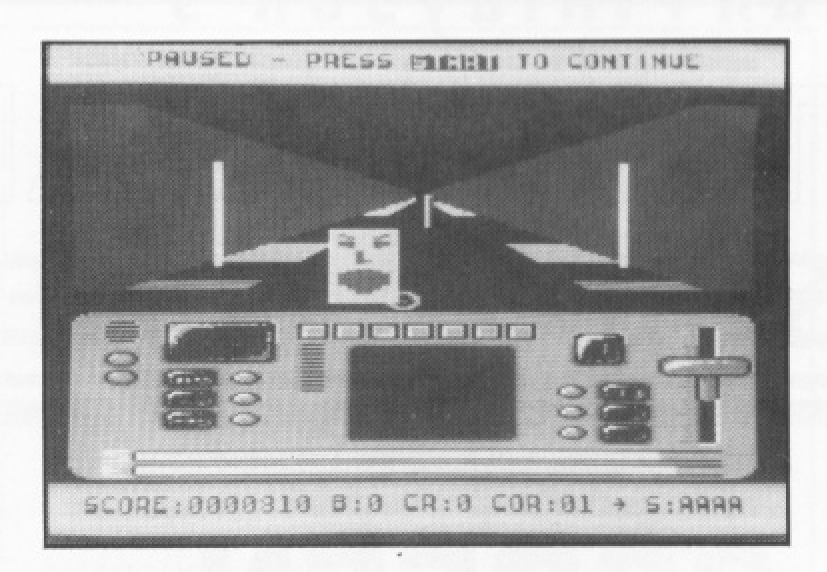
An alien-infested space station is the setting for the latest game from Harlequin, whose first release - PLASTRON - is also reviewed in this issue.

Another excellent musical composition accompanies the title page to ZERO WAR, which can only be described as a shoot' em up with a difference. The space station in question consists of a central corridor with a series of secondary passages leading off at regular intervals, where groups of peculiar aliens are known to reside. Your view is from the forward window of an attack fighter craft - the graphics here are very well done, featuring an excellent animated perspective view of the station complex and well-equipped control panel of the craft. Chequered curbing, a la Pole Position, provides the necessary feeling of speed as you fly around the corridors in search of combat. A message bar at the top of the screen warns of nearby nasties and a read-out below displays shield strength, energy and several other factors.

Your eventual aim is to collect three crystals that provide your passport to subsequent sectors, but first you must annihilate a variety of aliens. Once a corridor has been cleared, you have a split second chance to shoot down a container that, if you're successful, may bring you a smart bomb, fuel, enhanced weaponry or an elusive crystal. There are 49 sectors, numerous corridors and a grand selection of well-animated adversaries. You can tackle the nasties at full speed or while stationary, but reduced points are awarded if you opt for the latter tactic. Colliding with an alien results in a loss of your shield strength, and isn't advisable as you don't have an awful lot in reserve!

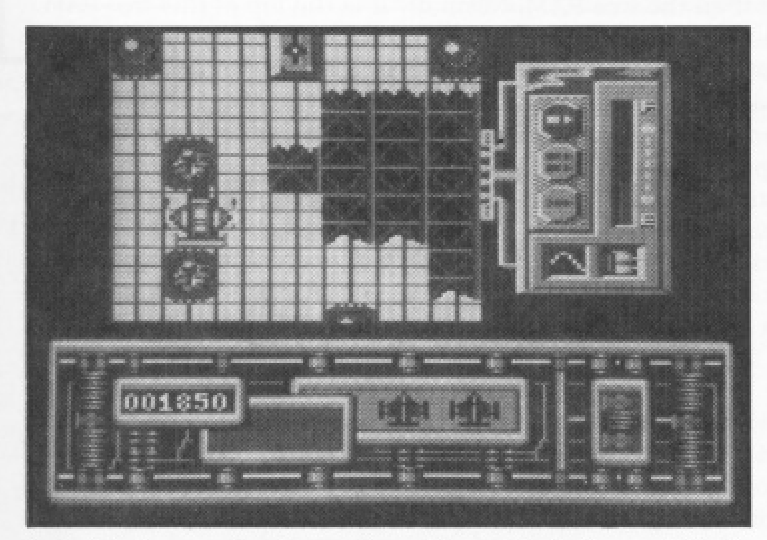
In addition to the aliens, there are several other problems to negotiate - laser doors in the main corridor require careful timing to destroy, and security checks are forced upon you at frequent intervals. These involve three spinning objects and a lot of joystick waggling, and aren't always easy to overcome - even when you know the method! I found them rather frustrating, personally. Fortunately, a password system allows you to re-enter those sectors that you've previously mastered.

ZERO WAR is definitely one for shoot 'em up fanatics who are looking for something different. With great graphics, good music and a novel theme, Harlequin should have no problems finding a market.



Title: **ZERO WAR**
Publisher: **Harlequin**
Price: **£7.99 cassette/ £9.99 disk**
Players: **1**
Reviewed by Paul Rixon

TITAN



It's always nice to receive something new from Atlantis Software, who've kept an unusually low profile in the past few months - especially when that something looks like being one of their most prestigious releases to date!

TITAN is a shoot 'em up which runs along vaguely similar lines to the first phase of Red Rat's Hawkquest. Your objective is to save the Andromeda galaxy from the clutches of the evil war-lord Gamma 7, who has apparently developed hyperspace platforms to destroy all life forms in the area. It seems that you're the last of the freedom fighters with a craft equipped ideally for the task in hand - 'multi-impact' shields, double pulsar lasers and white noise generators tuned to the resonant frequency of the hyperspace platforms. So, all you have to do is fly across the platforms long enough for the noise to take effect - and end the war-lord's reign of terror.

To commence the game you're required to select a location from a map of the Andromeda galaxy. As you point at the various planets, topical information is displayed to help you decide which one you wish to attack. There are five planets and three alien squadrons to deal with in all, which can each be tackled at four alternative difficulty settings. The planets feature characteristic background scenery, aliens and surface cannons while the squadrons offer just one of these components - yes, the aliens of course!

Occasionally, after you've successfully zapped the opposition, a small capsule is released that presents your opportunity to obtain supplies of additional fuel, speed, lives or bonus points. The nasties don't stop coming though, and the return gunfire can be difficult to avoid since the vertically scrolling playfield extends over only a small portion of the screen. The remainder of the display is filled with status panels indicating your score, lives, fuel level and the nature of incoming alien craft.

The graphics are colourful and quite well drawn, with good animation, but the scrolling is extremely slow and could be frustrating for the more experienced arcadians. Sound effects are basic, although not entirely unexpected for a game of this nature. Overall, Titan has most, if not all the ingredients of an addictive, high-class shoot 'em up - competent graphics, multiple levels, fearsome fire power and a variety of aliens. I'd like to see lots more like this one from Atlantis!

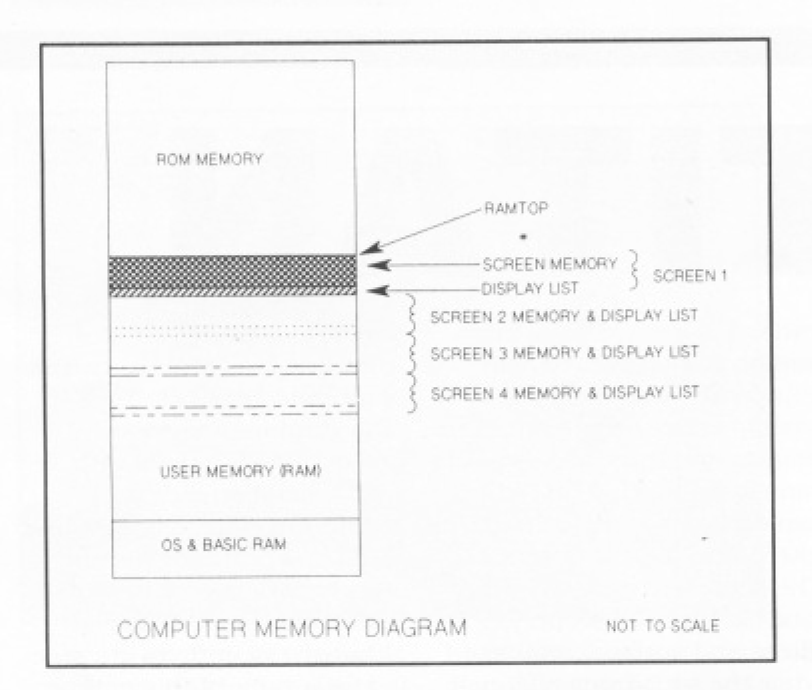
Title: **TITAN**
Publisher: **Atlantis Software**
Price: **£2.99 cassette**
Players: **1**
Loading: **16'30"**
Reviewed by Paul Rixon

Ian Finlayson's

TUTORIAL SUBROUTINES

SCREEN FLIPPING

Changing the screen image - instantly!



GRAPHICS MODE	MEMORY REQUIRED	"PAGES" OF MEMORY
0	993	4
1	513	3
2	261	2
3	273	2
4	537	3
5	1017	4
6	2025	8
7	3945	16
8	7900	32

I have called this tutorial Screen Flipping as I think the term "page flipping" which is often used to describe the technique is a bit misleading as it is easy to confuse "pages" of memory (256 bytes each) and "pages" of screen data (which take up different amounts of memory depending on the graphics mode selected). What we are going to do is set up a means of storing more than one screen image in the computer's memory so that we can then "flip" from one to another instantaneously with no delay while the new screen is drawn or recovered from disk. In fact I will show you two different ways of screen flipping using examples that flip between four different screens.

MEMORY MAP

Before going through the two programs in detail I will outline the Atari's memory map as this should make it easier to follow what comes later. The figure shows the memory of the computer in the form of a stack. At the bottom is RAM (Random Access Memory) used by the operating system for various purposes and the RAM used by Basic and DOS (if you are using a disk drive). Next comes the actual Basic program area and then the free RAM. Normally it is the top of this free RAM which is allocated to the screen (Screen RAM), and this is the area of memory that we will be manipulating. Above the top of Basic RAM (or RAMTOP) is ROM (Read Only Memory) which consists of the Basic or other ROM cartridge and the other chips in the computer such as POKEY, GTIA and ANTIC. The dotted layers in the top of free RAM represent areas of memory which we will set aside for screen data. Each of the layers will hold one screen.

PROGRAM ONE

The first method of screen flipping is the easier to understand, and it allows screens with different graphics modes to be mixed, but it does not let you display one screen while drawing another.

Lines 30 to 50 - First we look at the value in memory location 559 and keep it in the variable SCREEN. Next we select the graphics mode (zero, or normal text) and then we poke 559 with zero to turn the screen off. This is a cosmetic exercise which ensures that the screens we want are all drawn without being seen until we want to see them later in the program. If you prefer to watch what is going on to begin with delete line 50 and leave out lines 150,270 and 380 as well. These lines switch the screen off after each graphics call as the graphics command turns the screen on automatically.
Lines 70 to 90 - These lines write the text in the first screen.
Line 100 peeks locations 560 and 561. These locations show where the start of the display list is at this time. The display list is a short program that instructs the Atari's graphics chip ANTIC how to produce the required screen. The start of the display list is found in locations 560 and 561 in low byte, high byte form. The current values in these locations are saved in variables DLL1 and DLH1 for use later when we want to come

```
WO 1 REM ******************************
CR 2 REM *     TUTORIAL SUBROUTINES    *
EM 4 REM *        SCREEN FLIP I        *
XU 5 REM *              by             *
CO 6 REM *        Ian Finlayson        *
OG 7 REM *-----------------------------*
UN 8 REM * NEW ATARI USER - AUG 1990   *
WW 9 REM ******************************
AY 10 REM
AZ 20 REM
CO 30 SCREEN=PEEK(559)
LS 40 GRAPHICS 0
HV 50 POKE 559,0
EX 60 ? "┌──────────────────────────────┐
         |                              |
         |                              |"
NC 70 ? "|   THIS IS THE FIRST SCREEN   |
         |  (OR TOP LEVEL OF THE MENU)  |
         |                              |"
PP 80 ? "|                              |
         |        PRESS 2,3 OR 4        |
         |     FOR THE OTHER SCREENS    |"
QJ 90 ? "|                              |
         |          Q TO QUIT           |
         └──────────────────────────────┘"
BG 100 DLL1=PEEK(560):DLH1=PEEK(561)
UM 110 A=PEEK(106)
VI 120 REM ******************************
VL 130 POKE 106,A-4
YV 140 GRAPHICS 17
LN 150 POKE 559,0
HB 160 ? #6:? #6
IK 170 ? #6;"  THIS IS SCREEN 2  ------
   ----------":? #6
QO 180 ? #6;" 1.main menu"
DF 190 ? #6;" 3.THIRD SELECTION"
HN 200 ? #6;" 4.fourth selection"
SB 210 ? #6:? #6;"      Q. TO QUIT"
ET 220 ? #6:? #6;"  choose a number"
CS 230 DLL2=PEEK(560):DLH2=PEEK(561)
VN 240 REM ******************************
YC 250 POKE 106,A-8
ZP 260 GRAPHICS 18
LS 270 POKE 559,0
UZ 280 ? #6;"  THIS IS SCREEN 3  ------
   ----------"
QR 290 ? #6;" 1.main menu"
BL 300 ? #6;" 2.SECOND SELECTION"
HQ 310 ? #6;" 4.fourth selection"
SE 320 ? #6:? #6;"      Q. TO QUIT"
EW 330 ? #6:? #6;"  choose a number"
EA 340 DLL3=PEEK(560):DLH3=PEEK(561)
MG 350 REM ******************************
AP 360 POKE 106,A-12
YK 370 GRAPHICS 3:COLOR 2
LV 380 POKE 559,0
XK 390 PLOT 8,2:DRAWTO 32,2:DRAWTO 32,18:
   DRAWTO 10,18:DRAWTO 10,4:DRAWTO 28,4:D
   RAWTO 28,16:DRAWTO 14,16:DRAWTO 14,6
FO 400 DRAWTO 24,6:DRAWTO 24,14:DRAWTO 18
   ,14:DRAWTO 18,8:DRAWTO 20,8:DRAWTO 20,
   12:DRAWTO 22,12
BP 410 ? "1-MAIN MENU          2-SECOND SEL
   ECTION 3-THIRD SELECTION   4-FOURTH SEL
   ECTION Q-QUIT"
ES 420 ? "MAKE YOUR SELECTION";
FE 430 DLL4=PEEK(560):DLH4=PEEK(561)
JK 440 POKE 559,SCREEN
MH 450 REM ******************************
OF 460 GOTO 520
VD 470 GOSUB 550
LY 480 IF KEY=ASC("2") THEN POKE 560,DLL2
   :POKE 561,DLH2:GOTO 530
QD 490 IF KEY=ASC("3") THEN POKE 560,DLL3
   :POKE 561,DLH3:GOTO 530
TP 500 IF KEY=ASC("4") THEN POKE 560,DLL4
   :POKE 561,DLH4:GOTO 530
EX 510 IF KEY=ASC("Q") THEN GRAPHICS 0:PO
   KE 106,A:END
RZ 520 POKE 560,DLL1:POKE 561,DLH1:GOTO 4
   70
PT 530 GOTO 470
OC 540 END
PO 550 OPEN #1,4,0,"K:"
LI 560 GET #1,KEY
HP 570 CLOSE #1:RETURN
```

Listing 1

back to this screen as we are about to move to another part of memory.

Lines 110 and 130. Memory location 106 holds a value equal to the number of pages available under the top of RAM. That means that the address of RAMTOP is 256*PEEK(106). We know that the display list and screen memory are automatically placed just below RAMTOP, so by moving RAMTOP down it is possible to protect the memory area that holds the first screen and start again with a clean slate lower in memory. That is what is done when we poke 106 with (A-4) in line 130, RAMTOP is repositioned 4*256 or 1024 bytes down in memory. Moving down 4 pages is OK for all the graphics modes I am using in this example, but if you are using higher resolution graphics such as GRAPHICS 8 you will have to protect a larger chunk of memory. The table shows how much memory is needed for each mode, as you can see the higher modes use up memory very quickly.

Lines 140 and 150. Having moved down the top of RAM we can start the second screen. I have chosen GRAPHICS 17 (GRAPHICS 1 with no text window) for this screen. Line 150 is used to turn off the screen after the graphics call.

Lines 160 to 220 write the required text on the screen using caps, lower case and inverse text to get different colours on screen.

Line 230. This is where we obtain the start of the second display list just as line 100 saved the first.

Lines 250 to 430. In this large block of program we just repeat the same principal as above to generate two more screens. Screen 3 is in GRAPHICS 18 while screen 4 is a block graphic with a text window (GRAPHICS 3). In each case I have stepped down 4 pages in memory, though you will see from the table that I could have been more economical. Saving too big a block of memory causes no problems (except reduced space for your program etc.) but if you do not save enough memory the later screens will corrupt the earlier by overwriting.

Line 440 - Now that we have finished drawing the screens we must turn the screen back on so they can be seen by replacing the value SCREEN which was in memory location 59 initially.

Line 460 goes straight to line 520 which Pokes DLL1 and DLH1 back into memory locations 560 and 561. Thus the very first display list is activated and the first screen is displayed.

Lines 470 to 530 form a loop looking for a keypress 2,3,4,or Q and displaying screens 2,3 or 4 or quitting accordingly. Any other key press will invoke line 520 which invokes screen 1. Note that in line 510 we reset RAMTOP to its initial value before quitting. I have used the form ASC("1") in lines 480 to 510 as this is more descriptive and easy to follow than putting in the values returned by the keypress which would be 50,51,52 for 2,3,4 and 81 for Q.

This is where the screen flipping is actually happening, all the rest is setting up. Note how fast the screens change when you press a key. This speed is maintained regardless of the complexity of the original picture.

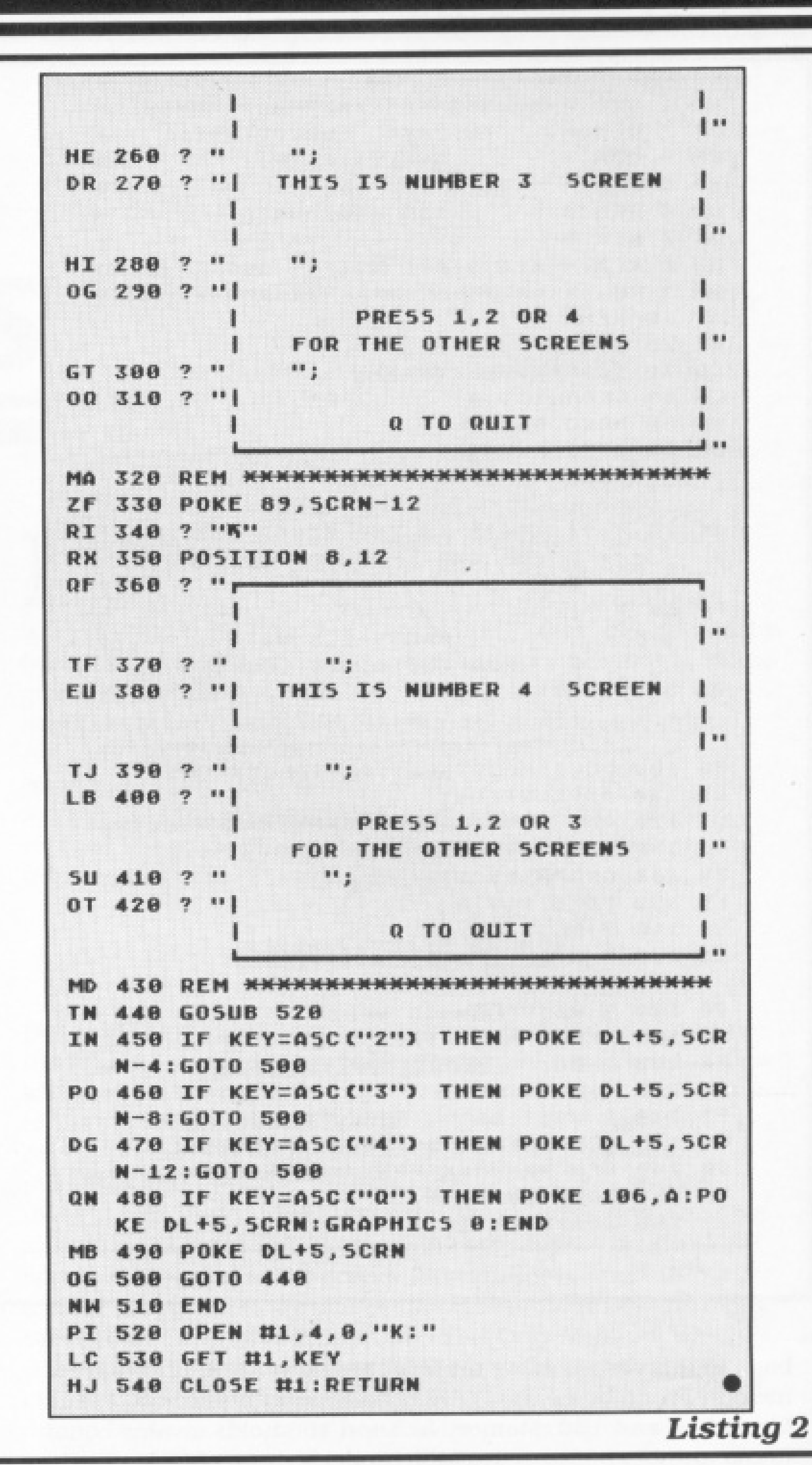
Lines 550 to 570 form the subroutine that looks for a keypress - this will be familiar to those of you who have followed the Tutorial Subroutines regularly.

PROGRAM TWO

This time we will use a different means of switching screens. In some ways it is more flexible than the first example because the screen data can be stored in any convenient part of

continued ☛

```
WO 1 REM ******************************
CR 2 REM *    TUTORIAL SUBROUTINES    *
WQ 4 REM *       SCREEN FLIP II       *
XU 5 REM *             by             *
CO 6 REM *        Ian Finlayson       *
OG 7 REM *----------------------------*
UN 8 REM * NEW ATARI USER - AUG 1990  *
WW 9 REM ******************************
AY 10 REM
ZE 30 ? "K"
EV 40 ? "┌──────────────────────────────┐
         |                              |
         |                              |"
TG 50 ? "|      THIS IS SCREEN ONE      |
         |  (OR TOP LEVEL OF THE MENU)  |
         |                              |"
PN 60 ? "|                              |
         |        PRESS 2,3 OR 4        |
         |    FOR THE OTHER SCREENS     |"
QH 70 ? "|                              |
         |          Q TO QUIT           |
         └──────────────────────────────┘"
SV 80 DLL1=PEEK(560):DLH1=PEEK(561):DL=DL
   L1+256*DLH1:SCRN=PEEK(DL+5)
HA 90 A=PEEK(106):POKE 106,A-12
VE 100 REM ******************************
QN 110 POKE 89,SCRN-4
RC 120 ? "K"
KR 130 POSITION 4,4
PZ 140 ? "┌──────────────────────────────┐
          |                              |
          |                              |"
AB 150 ? "  ";
CO 160 ? "|  THIS IS NUMBER 2  SCREEN    |
          |                              |
          |                              |"
AF 170 ? "  ";
QN 180 ? "|                              |
          |        PRESS 1,3 OR 4        |
          |    FOR THE OTHER SCREENS     |"
AJ 190 ? "  ";
ON 200 ? "|                              |
          |          Q TO QUIT           |
          └──────────────────────────────┘"
VH 210 REM ******************************
TK 220 POKE 89,SCRN-8
RF 230 ? "K"
OI 240 POSITION 6,8
QC 250 ? "┌──────────────────────────────┐
```



```
          |                              |
          |                              |"
HE 260 ? "    ";
DR 270 ? "|  THIS IS NUMBER 3  SCREEN    |
          |                              |
          |                              |"
HI 280 ? "    ";
OG 290 ? "|                              |
          |        PRESS 1,2 OR 4        |
          |    FOR THE OTHER SCREENS     |"
GT 300 ? "    ";
OQ 310 ? "|                              |
          |          Q TO QUIT           |
          └──────────────────────────────┘"
MA 320 REM ******************************
ZF 330 POKE 89,SCRN-12
RI 340 ? "K"
RX 350 POSITION 8,12
QF 360 ? "┌──────────────────────────────┐
          |                              |
          |                              |"
TF 370 ? "      ";
EU 380 ? "|  THIS IS NUMBER 4  SCREEN    |
          |                              |
          |                              |"
TJ 390 ? "      ";
LB 400 ? "|                              |
          |        PRESS 1,2 OR 3        |
          |    FOR THE OTHER SCREENS     |"
SU 410 ? "      ";
OT 420 ? "|                              |
          |          Q TO QUIT           |
          └──────────────────────────────┘"
MD 430 REM ******************************
TN 440 GOSUB 520
IN 450 IF KEY=ASC("2") THEN POKE DL+5,SCR
   N-4:GOTO 500
PO 460 IF KEY=ASC("3") THEN POKE DL+5,SCR
   N-8:GOTO 500
DG 470 IF KEY=ASC("4") THEN POKE DL+5,SCR
   N-12:GOTO 500
QN 480 IF KEY=ASC("Q") THEN POKE 106,A:PO
   KE DL+5,SCRN:GRAPHICS 0:END
MB 490 POKE DL+5,SCRN
OG 500 GOTO 440
NW 510 END
PI 520 OPEN #1,4,0,"K:"
LC 530 GET #1,KEY
HJ 540 CLOSE #1:RETURN
```

Listing 2

memory and you can view one screen while writing to another. The disadvantage is that all screens must be in the same graphics mode.

Lines 30 to 70 clear the screen and then draw the border and text for screen 1 in Graphics 0.

Line 80 finds DLL1 and DLH1 as in the previous example and then calculates the starting point of the display list, DL from these two values. The fifth and sixth items in the display list at memory locations (DL+4) and (DL+5) contain the value for the start of screen memory which is currently being displayed in low byte, high byte form. We are only going to manipulate whole pages of memory (256 bytes, remember) and so we only need to worry about the high byte. The value is stored in the variable SCRN.

Line 90. As before we find the location of RAMTOP in memory location 160 but this time we reserve all the memory we need for screen data in one go rather than going down slice by slice. For four GRAPHICS 0 screens we need 4K or 16 pages, but the first screen is already drawn so we need an additional 12 pages.

Line 110. Locations 88 and 89 contain the location for the start of screen memory for write operations in low byte high byte form. Initially the value here is the same as in DL+4 and DL+5 as described above. Again we will only consider the high byte (location 89). By poking 89 with SCRN-4 we move down 4 pages in memory for write operations. Notice that this does not change what is being displayed on the screen as this comes from the display list pointer.

Lines 120 to 200 draw the second screen in memory, but you cannot see it yet.

Lines 220 to 420 repeat the above process drawing two more screens each four pages lower in memory.

Lines 440 to 500 are where the screen flipping is carried out this time. Again we look for the keypress 2,3,4 or Q for pages 2,3,4 or Quit and make any other key flip to page 1. The flipping is done by moving the pointer in DL+5 to SCRN for page 1, SCRN-4 for page 2 etc. Note that line 480 restores RAMTOP to its original value before we END.

CONCLUSION

I hope this description has been clear. This technique has many applications - one that springs to mind in particular would be a drawing program which could have a main screen for the drawing itself and a second screen for instructions or help which could be flipped to when needed. If you are using the technique and have problems write with a SAE and I will try to help.

Write to Ian Finlayson, 60 Roundstone Crescent, East Preston, West Sussex, BN16 1DQ

ATARI GAMES



A roundup by Peter Terry of some recently available ROM cartridges discovered on a trip to his local computer shop

When I walked into my local computer store a little while ago, I discovered a multitude of ROM cartridges, most of which I had never seen before. After some decision, I shelled out for two of them (the other two I have on disk), and here are brief reviews of them for those of you who may not have discovered them yet.

DAVID'S MIDNIGHT MAGIC

This is not exactly a new game, but it has not been sold since 1985, so for all you new users it can almost be considered a new release. David's Midnight Magic is a pinball simulation. In it you can "shake the machine" (I haven't found out how to, but it says you can on the box!!!) and you can also have 4 players competing. The game is very realistic with decent graphics and acceptable sound. It's real addictability is in the playing. The game is fantastically addictive (I was playing until midnight anyway!). The machine has many features, like magi-save magnets, fuji bumpers, level loops, and a ball collector, so up to four balls can be in play at the same time. You control the flippers by using left, right, up and down. The screen display has the pinball machine on one side of the screen, and the titles and credits on the other. It's brill, but there is one puzzle. Who the Dickens is David?

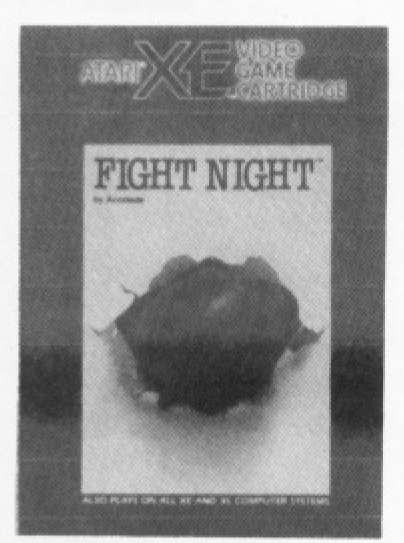
LODE RUNNER



Lode Runner is essentially a platform game, with many nice refinements. It was originally released in America on disk only, but now it makes it's debut on ROM here in good old England. In the game you play the part of a galactic commando who must return all the gold. However these nasty things called Bungeling Guards are out to stop you. There are plenty of added extra keys that add extra lives, skip a level or invoke keyboard operation, and a key to disable the telescoping feature between levels. You have 150 levels of arcade action to get through. The graphics are quite good, but the sound is a bit sparse. You control a small drill to dig holes to trap the guards in, but you can get trapped too! Finally there's a construction kit, and you can make your own screens and save them if you own a disk drive. Lode Runner is tremendously addictive, and is well worth shelling out £14.99 for!

LONG LIVE ATARI!

FIGHT NIGHT



This is a boxing game with many features. You can make your own boxer, train, fight with a friend, arrange a tournament or sit back and watch two other boxers knock the living day-lights out of each other. The other opponent boxers included within the program include "British Bulldog", "Hu Him", "Dip Stick", "Vronx Bomber" and "Kid Kastro". All these novel opponents have certain features and some nasty special punches as well. The graphics are excellent, and the sound is quite good. When you punch a boxer, their glasses, or hat, or cigar fly off and their eyes pop out! If you don't want to fight, you may make your own boxer, and save him. This game is recommended for people who often play games with a friend or colleague, and is a non-violent (huh?!?) way to let off steam. I would recommend it to you, its the best boxing simulation I have ever seen!

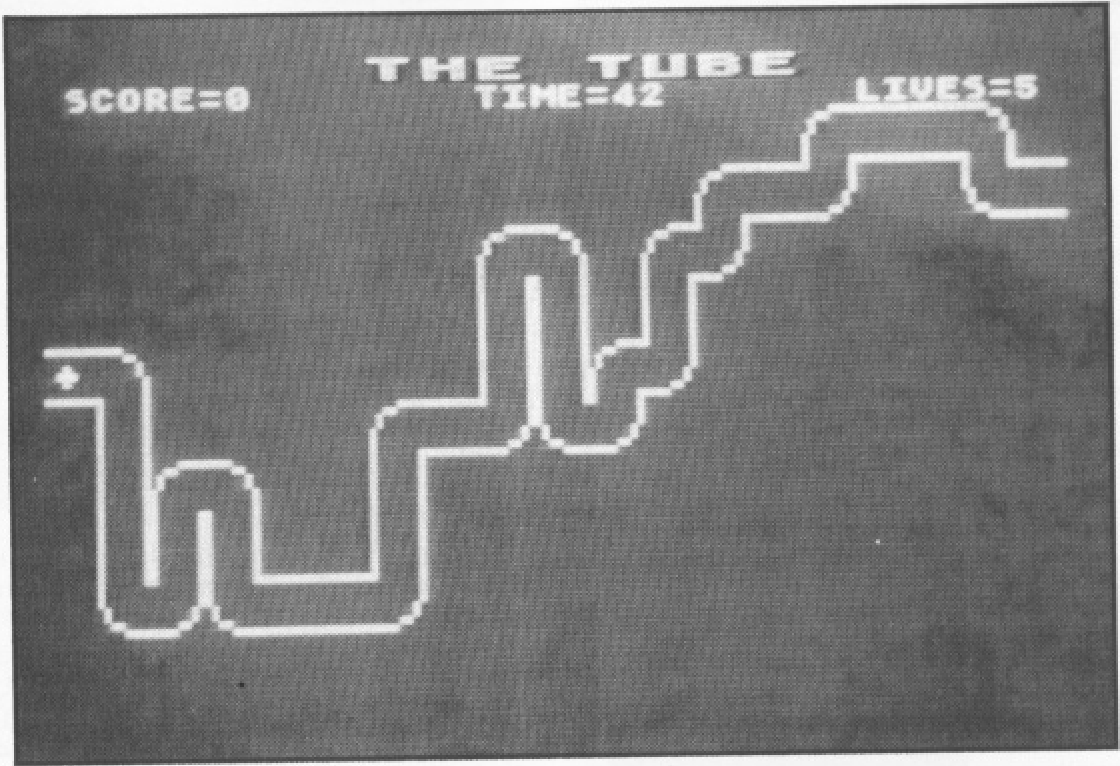
HARDBALL

This game is basically a sports simulation. Originally an Accolade release, it also makes it's ROM debut (funnily enough I saw a tape copy of this game whilst I was in the shop). It is an excellent baseball simulation with good music, great graphics and excellent playability. The two player option is best. I really enjoyed beating my friend at it! The graphics of the pitcher are superb. For those of you who can't play baseball, that doesn't matter, the game is fully explained (well, as much as you need to know anyway). It is like rounders, and is VERY addictive. Atari have yet another winner, and it's the best game reviewed on this page. If you don't already have it, buy it on ROM, and have instant access to THE best sports simulation on the Atari.

All these games are good, but the best, in my book is Hardball. However, if you are spoilt for choice, why not buy ALL of these new ROMS?

You may have to scout around to find these games from your local retailer but some of these, along with many other Atari games, are now available from the Accessory Shop at special prices. See the supplement this issue.

THE TUBE



by Dave Shakespeare

Here's a game that is harder than it seems. All you have to do is pilot your tiny craft through a huge bending tube. Sounds easy? Just try it!

The Tube creates a randomly bending tube on screen through which you negotiate your craft using thrusters to create movement in any direction or to slow your craft down. You must not touch the sides of the tube at any time and since the tube fills in behind you, you will lose a life if you stand still. If you do make it across the screen, the next level will present you with another tube of a different shape complete with obstacles to bar your progress. It gets quite hard!

You have five lives to play with. If you fail, just press the START key to play again.

THE TUBE

```
WO 1 REM ******************************
EW 2 REM *          THE TUBE          *
RT 3 REM *             by             *
YQ 4 REM *      D. SHAKESPEARE        *
OE 5 REM *----------------------------*
UL 6 REM * NEW ATARI USER - AUG 1990  *
WU 7 REM ******************************
NN 8 REM
LM 10 SCR1=5000:SCR2=5100:SCORE=0:LIVES=5
   :GO=0
BH 15 ? "K":? "Please wait......":? :? "I
   nitialising THE TUBE":FOR DEL=1 TO 500
   :NEXT DEL
LH 20 DIM ACROSS(70),DOWN(70),CHARA(70),C
   HAR(18),CHA(70)
ER 99 REM PMG SET-UP
QN 100 PMB=PEEK(106)-16:POKE 106,PEEK(106
   )-16:PMBASE=PMB*256
WX 110 POKE 106,PEEK(106)-5:ST=(PEEK(106)
   +1)*256
OI 120 GRAPHICS 18:POKE 559,0
TC 130 GOSUB 30000
CD 135 IF PEEK(PMBASE+5)=16 THEN RESTORE
   32000:GOTO 155
KA 140 FOR A=0 TO 209:READ B:POKE PMBASE+
   A,B:NEXT A
XT 160 FOR A=24 TO 263:READ B:POKE ST+A,B
   :NEXT A
IK 165 POKE 712,66:POKE 710,66:POKE 709,2
   04:POKE 704,14:POKE 705,60:POKE 708,74
   :POKE 711,74
VH 167 GOSUB 1800
CH 170 FOR A=0 TO 10:READ B:POKE 1736+A,B
   :NEXT A:POKE 1738,ST/256
SU 180 DL=PEEK(560)+PEEK(561)*256:POKE DL
   +20,PEEK(DL+19):POKE DL+19,PEEK(DL+18)
   :POKE DL+18,65:POKE DL+17,7
ZP 190 POKE DL+3,70:POKE DL+6,130:POKE 51
   2,200:POKE 513,6:POKE 54286,192
QJ 200 POKE 559,62:POKE 54279,PMB:POKE 53
   277,3:POKE 623,1
DR 220 POKE 53248,100:REM PMG STARTING PO
   SITIONS
RA 230 SCR1LO=PEEK(88):SCR1HI=PEEK(89):SC
   R2HI=SCR1HI:SCR2LO=SCR1LO+60
WI 240 IF SCR2LO>255 THEN SCR2LO=SCR2LO-2
   55:SCR2HI=SCR2HI+1
QC 300 ? #6;"K":POSITION 6,0:? #6;"the tu
   be"
SA 310 POSITION 1,1:? #6;"SCORE=00":POSIT
   ION 16,1:? #6;"TIME=00":POSITION 10,2:
   ? #6;"LIVES=";LIVES
FU 320 GOSUB SCR2
ZS 480 X=48:Y=113
EF 490 A=0:D=4:CH=35:J=1
NW 500 POSITION A,D:? #6;CHR$(CH):K=1:U=1
WT 505 ACROSS(J)=A:DOWN(J)=D:CHARA(J)=CH+
   15
FT 510 IF CH=35 OR CH=39 OR CH=41 THEN GO
   SUB 5200:GOTO 540
JI 520 IF CH=36 OR CH=40 THEN GOSUB 5300:
   GOTO 540
KM 530 IF CH=37 OR CH=38 THEN GOSUB 5400
LB 540 IF A=19 THEN 600
CU 550 POSITION A,D:? #6;CHR$(CH):IF CH=3
   5 THEN CHAR(K)=A+D*256:K=K+1
XS 552 IF CH=36 OR CH=37 THEN CHA(U)=A+D*
   256:U=U+1
RP 555 J=J+1
PS 560 GOTO 505
PX 600 TIME=J:GOSUB SCR1:POSITION 1,2:? #
   6;TIME:GOSUB SCR2:M=INT(RND(0)*K-1)+1
VX 601 IF GO<1 THEN 900
WI 602 IF M=0 THEN 600
QU 603 IF M=1 THEN GOTO 600+5*(K<2)
VW 605 IF K=0 THEN A1=0:D1=11:GOTO 1000
PS 610 D1=INT(CHAR(M)/256):A1=CHAR(M)-D1*
   256
LS 620 POSITION A1,D1:? #6;CHR$(42)
LX 700 V=INT(RND(0)*U-1)+1
WJ 701 IF GO<2 THEN 900
ZU 702 IF V=0 THEN 700
FP 703 IF V=1 THEN GOTO 700+5*(U<2)
AO 705 IF U=0 THEN A2=0:D2=11:GOTO 1000
ZG 710 D2=INT(CHA(V)/256):A2=CHA(V)-D2*25
   6
UD 720 POSITION A2,D2:? #6;CHR$(57)
OL 899 REM START COUNTDOWN
QR 900 Q=USR(1536,PMBASE,PMBASE+1024+Y,14
   ):POKE 53248,X
IM 910 FOR B=1 TO 3:SOUND 0,60,10,10:FOR
   DEL=1 TO 50:NEXT DEL
FA 920 SOUND 0,0,0,0:FOR DEL=1 TO 150:NEX
   T DEL:NEXT B
KY 930 SOUND 0,121,10,10:FOR DEL=1 TO 100
   :NEXT DEL:SOUND 0,0,0,0
KN 1000 POKE 19,0:POKE 20,0:DOOR=42:L=0:P
   OKE 53278,0
VY 1003 K=1
QE 1005 S=STICK(0)
QH 1010 INCX=INCX+0.15*((S=7 OR S=6 OR S=
   5)-(S=11 OR S=10 OR S=9))*(INCX<2 AND
   INCX>-2)
EQ 1020 INCY=INCY+0.3*((S=13 OR S=9 OR S=
   5)-(S=14 OR S=10 OR S=6))*(INCY<4 AND
   INCY>-4)
MK 1030 INCX=INCX-0.025*(INCX>0)+0.025*(I
   NCX<0):INCY=INCY-0.05*(INCY>0)+0.05*(I
   NCY<0)
UB 1035 SOUND 6,20,0,6*(S<>15)
DB 1040 X=X+INCX:Y=Y+INCY:IF X<48 THEN X=
   48:INCX=0
HO 1050 A=USR(1536,PMBASE-2,PMBASE+1022+Y
   ,18)
UW 1060 POKE 53248,X:POKE 53249,X
IL 1070 A=USR(1623,PMBASE+1278+Y,18):GOSU
   B 2000+S
PF 1080 L=L+1:IF GO>0 THEN POSITION A1,D1
   :? #6;CHR$(DOOR+L/8)
AO 1081 IF GO>1 THEN POSITION A2,D2:? #6;
   CHR$(57+L/8)
ZP 1083 IF L>57 THEN L=-5
UW 1085 IF L=16 OR L=-5 OR L=38 THEN POSI
   TION ACROSS(K),DOWN(K):? #6;CHR$(CHARA
   (K)+96):K=K+1:SCORE=SCORE+10
HT 1090 IF PEEK(53252)<>0 THEN 1500
KA 1095 GOSUB SCR1:POSITION 7,1:? #6;SCOR
   E;" ":POSITION 1,2:? #6;TIME-PEEK(19):
   GOSUB SCR2
NF 1100 IF X>197 THEN GOTO 1600
PK 1200 GOTO 1005
TU 1499 REM CRASH
OV 1500 GOSUB SCR1
DK 1502 Q=USR(1623,PMBASE+1280,256):FOR Q
   =0 TO 5:R=USR(1536,PMBASE+126+Q*14,PMB
   ASE+1024+Y,14)
LJ 1504 R=USR(1536,PMBASE+112+Q*14,PMBASE
   +1280+Y,14)
DV 1505 SOUND 0,Q*30+20,0,12-Q*2:FOR DEL=
   1 TO 25:NEXT DEL
MF 1508 NEXT Q:SOUND 0,0,0,0
JW 1509 SCORE=SCORE-10:LIVES=LIVES-1:POSI
   TION 16,2:? #6;LIVES:IF LIVES=0 THEN 1
   700
VB 1510 Z=INT(Y/16):IF Y-Z*16>8 THEN Z=Z+
   1
QV 1515 Y=Z*16
LL 1520 Z=INT(X/8):IF X-Z*8>4 THEN Z=Z+1
WO 1525 X=Z*8
GR 1530 IF PEEK(53252)>7 THEN X=ACROSS(K)
   *8+48:Y=DOWN(K)*16+48
EJ 1535 A=USR(1623,PMBASE+1024,512):A=USR
   (1536,PMBASE,PMBASE+1024+Y,14)
CX 1540 POKE 53248,X:POKE 53278,0
OD 1550 INCX=0:INCY=0
GS 1580 GOSUB SCR2:POKE 77,0
QR 1590 GOTO 1005
FJ 1599 REM FINISH SCREEN
YU 1600 SOUND 0,0,0,0:GOSUB SCR1
CM 1605 BONUS=20*(TIME-PEEK(19)):SCORE=SC
   ORE+BONUS:FOR DEL=1 TO 100:NEXT DEL
EC 1610 POSITION 5,0:? #6;"bonus=";BONUS;
   "  ":POSITION 1,2:? #6;"    "
XE 1615 FOR B=1 TO 2:SOUND 0,121,10,10:FO
   R DEL=1 TO 30:NEXT DEL:SOUND 0,96,10,1
   0:FOR DEL=1 TO 30:NEXT DEL
PW 1620 SOUND 0,162,10,10:FOR DEL=1 TO 30
   :NEXT DEL:SOUND 0,121,10,10:FOR DEL=1
   TO 30:NEXT DEL
OC 1625 SOUND 0,0,0,0:FOR DEL=1 TO 30:NEX
   T DEL:NEXT B
```

continued

THE TUBE

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RP 1630 POSITION 5,0:? #6;" the tube ":PO
     SITION 7,1:? #6;SCORE:GOSUB SCR2
RD 1670 FOR Q=1 TO J:POSITION ACROSS(Q),D
     OWN(Q):? #6;" ":NEXT Q
JK 1680 GO=GO+1:INCX=0:INCY=0:POKE 77,0
WA 1690 J=USR(1623,PMBASE+1024,512):GOTO
     480
WL 1699 REM END OF GAME
IZ 1700 POSITION 4,0:? #6;"end of game"
RL 1710 RESTORE 32100
BV 1720 READ G,H:IF H=-1 THEN 1745
EV 1730 SOUND 0,G,10,10:FOR DEL=1 TO H:NE
     XT DEL
RU 1740 GOTO 1720
OQ 1745 A=USR(1623,PMBASE+1024,512):GOSUB
      SCR2:FOR Q=1 TO J:POSITION ACROSS(Q),
     DOWN(Q):? #6;" ":NEXT Q:GOSUB SCR1
DI 1750 POSITION 2,0:? #6;"start = NEW GA
     ME":POSITION 1,2:? #6;"   "
CQ 1760 IF PEEK(53279)<>6 THEN 1760
GX 1770 POSITION 2,0:? #6;"    the tube
      "
MT 1775 LIVES=5:SCORE=0:INCX=0:INCY=0:GO=
     0
SP 1780 POSITION 7,1:? #6;SCORE;"       ":
     POSITION 16,2:? #6;LIVES:POSITION 1,2:
     ? #6;"   "
XG 1790 GOSUB SCR2:GOTO 480
VI 1799 REM TITLE SCREEN
KD 1800 POKE 559,34:POSITION 6,1:? #6;"th
     e tube":POSITION 9,3:? #6;"by"
GG 1810 POSITION 2,5:? #6;"dave shakespea
     re"
XG 1820 POSITION 1,7:? #6;"FOR PAGE 6 MAG
     AZINE"
VA 1830 POSITION 7,9:? #6;"press"
TQ 1840 POSITION 7,11:? #6;"start"
TM 1850 FOR DEL=1 TO 100:IF PEEK(53279)=6
      THEN POP :GOTO 1880
WH 1855 NEXT DEL
HG 1860 POSITION 7,11:? #6;"     "
UJ 1865 FOR DEL=1 TO 100:IF PEEK(53279)=6
      THEN POP :GOTO 1880
VT 1870 NEXT DEL
UL 1875 GOTO 1840
BV 1880 ? #6;"K":POKE 559,0
BQ 1890 RETURN
AM 2000 REM POSITION OF FLAME
MY 2005 A=USR(1536,PMBASE+84,PMBASE+1280+
     Y,14):RETURN
II 2006 A=USR(1536,PMBASE+70,PMBASE+1280+
     Y,14):RETURN
MK 2007 A=USR(1536,PMBASE+56,PMBASE+1280+
     Y,14):RETURN
LF 2009 A=USR(1536,PMBASE+112,PMBASE+1280
     +Y,14):RETURN
RB 2010 A=USR(1536,PMBASE+98,PMBASE+1280+
     Y,14):RETURN
GV 2011 A=USR(1536,PMBASE+42,PMBASE+1280+
     Y,14):RETURN
GH 2013 A=USR(1536,PMBASE+14,PMBASE+1280+
     Y,14):RETURN
LF 2014 A=USR(1536,PMBASE+28,PMBASE+1280+
     Y,14):RETURN
AX 2015 RETURN
DV 5000 POKE 88,SCR1LO:POKE 89,SCR1HI
BE 5090 RETURN
FU 5100 POKE 88,SCR2LO:POKE 89,SCR2HI
BG 5190 RETURN
PX 5200 A=A+1:IF D=10 THEN C=INT(RND(0)*2
     ):CH=35+5*(C=1)
YV 5210 IF D=0 THEN C=INT(RND(0)*2):CH=35
     +3*(C=1)
RF 5220 IF D>0 AND D<10 THEN C=INT(RND(0)
     *3):CH=35+3*(C=1)+5*(C=2)
BI 5290 RETURN
NT 5300 D=D-1:IF D>1 THEN C=INT(RND(0)*2)
     :CH=36+5*(C=1)
AD 5310 IF D<2 THEN CH=41
BK 5390 RETURN
NN 5400 D=D+1:IF D<9 THEN C=INT(RND(0)*2)
     :CH=37+2*(C=1)
JM 5410 IF D>8 THEN CH=39
BM 5490 RETURN
TN 30000 REM *** PMBASE CLEAR ROUTINE
GW 30005 IF PEEK(1625)=133 THEN RESTORE 3
     1000:A=USR(1623,PMBASE,2048):RETURN
CV 30010 FOR J=0 TO 41:READ A:POKE 1623+J
     ,A:NEXT J:A=USR(1623,PMBASE,2048)
PC 30020 DATA 104,104,133,204,104,133,203
     ,104,133,206,104,133,205,166,206,160,0
     ,169,0,145,203,136
ZD 30030 DATA 208,251,230,204,202,48,6,20
     8,244,164,205,208,240,198,204,160,0,14
     5,203,96
OV 30040 REM *** VERTICAL ROUTINE ***
LM 30050 FOR J=0 TO 86:READ A:POKE 1536+J
     ,A:NEXT J:RETURN
AS 30060 DATA 104,201,3,208,81,104,133,22
     5,104,133,224,104,133,227,104,133,226,
     104,133,229
JI 30070 DATA 104,133,228,169,0,133,230,1
     33,231,168,177,224,145,226,24,169,1,10
     1
NY 30080 DATA 224,133,224,169,0,101,225,1
     33,225,24,169,1,101,226,133,226,169,0,
     101,227,133,227,24
DX 30090 DATA 169,1,101,230,133,230,169,0
     ,101,231,133,231,24,165,228,197,230,20
     8
BA 30100 DATA 206,165,229,197,231,208,200
     ,96
FE 31000 REM PMG SHAPE DATA
XR 31010 DATA 0,0,0,0,16,16,56,56,16,16,0
     ,0,0,0,0,0,16,16,0,0,0,0,0,0,0,0,0,0
     ,0,0,0,0,0,0,0,0,0
AC 31020 DATA 16,16,0,0,0,0,0,0,0,0,4,4,0
     ,0,0,0,0,0,0,0,0,0,0,64,64,0,0,0,0,0
     ,0,0,0,0,0,0,0,0,0
QH 31030 DATA 32,96,64,0,0,0,0,0,0,64,96,
     32,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,8,1
     2,4,0,0,0,0,0,0
BS 31040 DATA 4,12,8,0,0,0,0,0,0,0,0,0,0,
     0,16,16,0,108,108,0,16,16,0,0,0,0,0,16
     ,16,0,0,108,108,0,0
IT 31050 DATA 16,16,0,0,0,16,16,0,0,196,0
     ,0,196,0,0,16,16,0,16,16,0,0,196,0,16,
     16,0,196,0,0,16,16,16,0,0
DQ 31060 DATA 130,0,16,0,0,16,0,130,0,0,1
     6,16,0,130,0,16,0,0,0,0,16,0,130,0,16
JG 32000 REM CHARACTER SHAPE DATA
ZR 32010 DATA 255,0,0,0,0,0,0,255,129,129
     ,129,129,129,129,129,129,129,129,129,1
     29,129,129,129,129
BK 32020 DATA 240,12,2,2,1,1,1,129,129,12
     8,128,128,64,64,48,15,129,1,1,1,2,2,12
     ,240
KS 32030 DATA 15,48,64,64,128,128,128,129
     ,255,128,128,0,0,128,128,255,255,64,64
     ,0,0,64,64,255
CL 32040 DATA 255,32,32,0,0,32,32,255,255
     ,16,16,0,0,16,16,255,255,8,8,0,0,8,8,2
     55
JZ 32050 DATA 255,4,4,0,0,4,4,255,255,2,2
     ,0,0,2,2,255,255,1,1,0,0,1,1,255
RL 32060 DATA 255,255,255,255,255,255,255
     ,255,255,255,255,255,255,255,255,255,2
     55,255,255,255,255,255,255,255
GL 32070 DATA 240,252,254,254,255,255,255
     ,255,255,255,255,255,127,127,63,15,255
     ,255,255,255,254,254,252,240
HS 32080 DATA 15,63,127,127,255,255,255,2
     55
QK 32081 DATA 129,129,129,129,129,129,129
     ,129,129,129,129,129,129,129,195,195,1
     29,129,129,129,129,129,231,231
TV 32082 DATA 129,129,129,129,129,129,255
     ,255,129,129,129,129,129,129,129,129,1
     29,129,129,129,129,129,195,195
SM 32083 DATA 129,129,129,129,129,129,231
     ,231,129,129,129,129,129,129,255,255
QL 32085 REM DISPLAY LIST INTERRUPT
GE 32090 DATA 72,169,0,141,10,212,141,9,2
     12,104,64
WL 32100 REM END OF GAME TUNE
DJ 32110 DATA 162,20,0,10,162,20,0,10,162
     ,20,0,10,204,90,0,60
AS 32120 DATA 182,20,0,10,182,20,0,10,182
     ,20,0,10,217,90,0,0
EN 32130 DATA 0,-1
```

contact ... contact ... contact ... contact

FOR SALE

XL COMPUTER: 800XL (needs attention) with leads, £10. More than 70 top tape titles, including Zybex, Spy Vs Spy and Ballblazer, £45. Buyer collects or £4.50 p+p. Tel: 0782-658708 and ask for Peter Terry

TWO COMPUTERS: Atari 400, 130XE, 2 data recorders, over £450 worth of games, 2 joysticks, 18 mags, 4 books, no splits. Worth £700, sell for £330 o.n.o. Write to: David at 64 Keverne Close, Aspley, Nottingham NG8 5EG (Buyer collects)

XL SYSTEM: 800XL, 1050 disk drive, all leads, 100+ games in disk case. Must sell for £120 o.n.o. Write to: 23 Dominion Road, Glenfield, Leicester

XL SYSTEM: 800XL, XF551 disk drive + SpartaDOS X, 50 disks + box, 13 ROMs, magazines, joystick & paddles. All in top condition, £200 o.n.o. Tel: John on 0268-750271 after 7pm (Buyer collects)

PRINTER: 1029 plus paper & spare ribbon, Atariwriter, Action cartridge & book. Any reasonable offer. Phone: 0744-814579

8-BIT HARDWARE: 1050 disk drive + over £150 worth of software, including Transdisk IV, £90. Also Touch Tablet and Atari Artist, £30. Tel: 0484-653724

XL SYSTEM: 800XL, 1050 disk drive, 1029 printer, joystick, Touch Tablet, Atariwriter+, Home Accounts, Home Filing Manager, SAM Automatic Mouth, strategy games plus many other games, all manuals, leads, etc, in good working order, various programming books, all for £180 o.n.o. Phone: Southampton (0703)-893082

XL SYSTEM: 800XL, 1050 disk drive, 1010 tape recorder, 1029 printer, joystick, leads, manuals, all boxed plus Atari User issues Vol.1 No.12, Vol.2 No.1-9, No.11, Vol.3 No.1, 2, 4, 5, 9, 10, 11, 12, Vol.4. No.1, 2, 4, 5, 6, Page 6 Issues 36-40, 42. Limited software, £175 o.n.o. No splits, buyer collects. Phone Tom (evenings or weekends) on: 0895-631485

ST SYSTEM: 520STFM with double-sided 1 meg internal drive, loads of games in good condition, still boxed, £325 o.n.o. Contact Tony on: 061-998-4957 or 061-445-0439

MONITOR: Commodore 1701, gives excellent colour picture with Atari 800XL or 130XE, £85. Phone: 09662-5032 (Windermere)

XL SYSTEM: 800XL (REVC), 1050 D/D Disk Drive, 1029 Printer, 1020 Printer/Plotter, 1010 cassette plus 100's of tapes and disks, all originals, £250 o.n.o. No reasonable offer refused. Tel: 0702-201355

8-BIT BARGAINS: Computer Eyes, Voice Master, Touch Tablet, 850 interface, selection of games on disk, tape and cartridge including Transdisk IV, Gauntlet, Auto-Duel, Draconus, Druid, etc. Phone for prices on: 0602-400768

ST SYSTEM: 520ST with new external disk drive, Multiface, joystick, Autoroute, word processors, utilities, databases & lots of games, £240. Phone: 01 890 4666

XL SYSTEM: 800XL, 1010 data recorder, joystick, games, all with original manuals and boxes and in perfect condition, £60. Tel: 0382-202150

XL SYSTEM: 800XL (REVC), OS Card, Rambo 256K, Cupid I/F, XF551 Disk Drive, 1010 Cassette, Morse I/F, 35 cassettes, 130 disks (boxed) assorted software (Mini Office II, Printshop, Atari Writer Plus & lots more), £325.00 delivered. Also Graphics AT I/F, £20.00. Phone: 0621- 741881

XE SYSTEM: 130XE, 1050 Disk drive, £150 worth of cartridge/disk games (Pac Man, Star Raiders, Robot Man, Flight Sim II & scenery disk, etc) books and magazines, £110 or may split. Phone: Chichester (0243)- 531174

MODEM: 300 & 1200 baud industrial standard with RS232 cable, suit most computers, £60; Datari Interface plus software to use modem with 8- bit Atari range, £10 extra. Phone: 0423- 879533 after 6pm or weekends

ATARI BASIC TUTOR: An Invitation To Programming 2; Writing Programs 1 & 2; An Invitation To Programming 3; Introduction To Sound & Graphics. Comprises two manuals and four combined audio/program cassettes - Offers? Write to: Paul, 17 Spring Road, Clifton, Shefford, Beds. SG17 5RE

XL SYSTEM: 2 800XL's, XF551 disk drive, 1050 disk drive, 850 interface, Graphix AT parallel interface, joystick, trakball, 1027 LQ printer, Spartados, Mini Office II, Mouse + lots of software and Atari books, £400 or will split at usual prices. Phone: 071- 435- 2796

XL SYSTEM: 800XL plus 1050 disk drive (hardly used), £115.00 post free, will not split. Phone: 0423- 879533 after 6pm or weekends

PRINTER: 1029 dot matrix, with lead, £80. Tel: 0792-795369

XE SYSTEM: 130XE, 1010 recorder, leads and manuals, over £300 worth of software, 2 joysticks and Atari User mags. Need quick sale, only £175 o.n.o. Phone Doug on: 0903- 787705 (or Ansaphone)

XE SYSTEM: 65XE, XC12 datacorder, dust cover, manual and boxed in mint condition; joystick, over £100 worth of software (Draconus, Tiger Attack, etc); some issues of Page 6 + old TV, only £99.00. No splits. Buyer must collect. Phone Peter on: 0823 252276

XL SYSTEM: 800XL, 1050 D/D, T/Tablet, dozens of games/utilities, inc. FSII with 3 scenery disks. Also all manuals, several relevant books, joysticks, blank disks, etc. £110 - no splits. Phone: Ilkley (0943)- 600413. Buyer collects

ST RAM CHIPS: For memory upgrade, originally bought for a now abandoned project, hence only £2.00 each. Tel: 0734- 313791 (Evenings)

MUSIC ON THE XL/XE: Three octave, four note polyphonic keyboard with software for the XL/XE. plugs into joystick ports, £40.00 o.n.o. Phone: Northampton (0604)- 710268 any time. Buyer collects

MAGAZINES: Large number of Antic and Analogs, Compute! mags., 2 sets: Vol.1 of ST World including issue No.1, one bound, 8 copies of ST Applications, Atari Users from Issue 1, offers. Want Alternate Reality Dungeon Disk. tel: 0602-602328 (Nottingham)

XE SYSTEM: 65XE, XC12 datacorder, 6 joysticks, books & mags, £400 worth of software with lots of top titles, 1 year old, boxed. Buyer collects. Will split games. All worth £680, yours for £150. Ring Lawrence on: 0994-419447

XL SYSTEM: 800XL, 1050 disk drive fitted U.S. Doubler, 1027 printer, spare ink roller, Atariwriter+, Spartados, PD software, 10 blank disks, over 100 games, Page 6 and Atari mags, lockable disk box, £270. Tel: 0384-75155

XE SYSTEM: 65XE, XC12 cassette recorder, 2 joysticks, some software (serious & games), b/w TV, £120. No splits. Phone Pete on: 0604-718702. Can deliver within reasonable distance of Northampton

DISK DRIVES: 1050 drive with U.S. Doubler and Happy/Lazer board, £125; Memory upgrade for Atari ST, £65.00; Internal 1 Meg drive for STFM, £50.00; Spare mouse, £20.00. Also want any non-working ST. Phone: 0495-272092

BLANK DISKS: 50 unbranded DS/DD 3.5 inch disks, unused and unwanted gift, only £23. Phone: 021-702-2139 after 6pm

ST SYSTEM: 520 STFM with computer desk, 2 joysticks, mouse, £180 worth of software, several magazines with cover disks. Excellent condition, £230 o.n.o. Call Mike on: 021-457-7706

XE SYSTEM: 130XE, 1027 printer, 1050 disc drive, software which includes The Pawn, Lancelot, Mercenary, International Karate, Koronis Rift, Transdisk IV, Paperclip, Page 6's and PD, all originals. Books include Compute!'s First Book & Mapping The Atari, £175 complete. Ring Ian or Sheila on: 0254-664005 after 5.15pm

XE SYSTEM: 65XE with XC12 cassette recorder, CX40 joystick, books & magazines. Also 60+ games worth over £200. All this for £80.00. May split and buyer must collect if possible. Phone: 0268-747565

XL SYSTEM: 800XL, 1050 drive with U.S. Doubler, 1010 recorder, trackball, 3 joysticks, 100+ disks, boxed, £200. Tel: 0782-312662

XE SYSTEM: 65XE, XF551, XETEC Graphix AT Printer interface, MAC65, Spartados X, Microsoft Basic 2, Mini Office II Disk, £100 of software, all for £140. Phone Jim on: 03552-39522 (Evenings & Weekends)

XE/XL SYSTEMS: 130XE, 1050 disk drive, Joystick + £200 of disk software, £150; 800XL, 1010 tape deck, joystick + £200 of cassette/ROM software, £100. Both systems boxed with manuals for £225. Phone: Exeter 218875 (after 5 August!)

XE SYSTEM CLEAROUT: 130XE plus 1050 disk drive (LAZER enhanced). Over 100 disks full of utilities, languages, games/adventures, Centronics printer interface, 100's of Antic/Analog mags, loads of books and manuals and much more, £225 - no splits. Phone Fred on: 0506-882944. (Can deliver in Central Scotland)

XL SYSTEM: 800XL, brand new XC12 cassette recorder and cover, over £60 worth of software on cassette plus joystick, £100. Telephone: 0395-267298 after 4pm

65XE: upgraded to 130XE, 1050 disk drive, 1020 printer/plotter, data recorder, touch tablet, disks, tapes, books & magazines, £290 o.n.o. Phone: 0203-503922

XL SYSTEM: 800XL (controller card), Happy 1050 drive, 2 joysticks, loads of Atari magazines + some books, over £400 of software on disk plus about 30 tapes. All in excellent condition and in original packaging. Offers around £200. Ring 0803-862230 after 5pm and ask for James

ST SYSTEM: 520STFM, 1.5 Meg, joystick, mouse + mat and holder, 30 games and disk full of utilities, virus killer and much more, £250 o.n.o. Write to: Jim Donald, 55 Carlowrie Place, Gorebridge, Midlothian, Scotland EH23 4XP

XE SYSTEM: 130XE, 1050 disk drive, 1010 cassette, 1029 printer, assortment of software including Mini Office II & Flight Simulator II, various books and manuals, 100-cap disk box, £350 o.n.o. Phone: 0203-302464 after 6pm

XE SYSTEM: 130XE, XF551 drive (both boxed), Xetec printer interface, Rev. Mapping The Atari, De Re Atari, 20 Atari User magazines, £180+ worth of commercial & PD software (all originals), all for £250. Phone: Plymouth 569608 and ask for Tris

HARD DRIVE: 20Mb hard disk drive to suit Atari ST, new and unused, only £220 o.n.o. Tel: 071-272-1254

DISK DRIVE: XF551, less than three months old, as new and in perfect condition with DOS XE, MYDOS 4.5, DOS 2.5, dust cover, box and manuals. Cost over £170, offers to: Paul Allton, 66 Combe Park, Yeovil, Somerset BA21 3BE

WANTED

PROGRAMS: Could anyone send me photocopies of the following: Blockbreaker (Issue 20); Munchy Madness Screen Designer (Issue 28); Flexible Fingers (Issue 26). Please send to: Mr.J.Chan, 54 Biddulph Way, Ledbury, Herefordshire HR8 2HN

HAUNTED HOUSE: Plus ADVENTURE cartridges for 2600 VCS. Phone Steve on: 0743-59691

65XE SOFTWARE: Cassette Loader, Short List programs 15-25 lines, colour moving patterns and graphics, sliding block puzzles, etc. Will exchange. Write to: F.Card, 4 Loraine House, Acre Lane, Wallington, Surrey

HELP!: Has anyone got a spare set of the original instructions (User Manual, etc) for the Atari 1029 printer? Phone Harry on: 0787-473136

PRINTER: 1029 or 130XE compatible, must be in good condition please. Tel: Lesley Beasant on Reading (0734)-700575

XL/XE HARDWARE: Either XL/XE computer or 1050 disk drive + manual. Will exchange for Battalion Commander, Lapis Philosophorum, Speed Run and Silent Service (all disk). Contact: B.Galloway, 5 Benview Avenue, Belfast BT14 8RB

MAGS/INFO: Any Analog magazines and where to buy PD software/type in programs. Ring Chris on: 06333-63939 (Cwmbran, Gwent)

ATARI HARDWARE: Faulty hardware welcome, especially disk drives. Up to £20.00 + p&p will be paid. Please contact Mike on: 0734-833006 or write to: 98 Hunters Hill, Burghfield Common, Reading, Berkshire

DISK DRIVE: 1050, must be in good working order, up to £50 paid. I also have a Trakball for sale or exchange. Phone: 0992-551282 (Hertford)

US DOUBLER: With instructions and SpartaDos on disk. Good prices paid. Phone Laurie Jeffs on: 0375-391199 (Ext 360) daytime or 0268-412406 evenings and weekends

TECHNICAL ADVICE: On the 48K expansion in my Atari 400 desperately needed. Phone: 0604-710268 any time

DISK DRIVE: 1050 for 800XL, working order please. Ivan Comiskey, 33D North Clarence Street (Flats), Dublin 1, Ireland

DISK DRIVE: 1050 in good working order with manuals, etc. Any reasonable price paid. Ring Birmingham (021)-7427999

TIME & MAGIK: Adventure on cassette. Will swap for Scapeghost on cassette. Write to: L. Colclough, 43 French Avenue, Mile Oak, Tamworth, Staffs. B78 3PB

PRINTER/PLOTTER: 1020, will pay £25.00 or nearest decent offer! Must be in good condition. Collection possible. Tel: 0532-861476 and ask for James or write to: 14 Firtree Avenue, Garforth, Leeds LS25 2JA

OLD 8-BIT HARDWARE: Atari 400's and 1020 in working condition. Ring Kevin on: 075786-515 (York area)

More overleaf ☛

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

contact extra ... contact extra ...

WANTED

REVISED MAPPING THE ATARI: £15 offered if in good condition. Please ring Nick Toop on: 0223-68000 between 10.30am & 7.00pm Mon-Fri

DISK DRIVE: 1050 in good working order. If you've got one to sell then please phone Bicester (0869)-346939 after 5.30pm weekdays

DISK DRIVE: 1050 in working order. Please write to me with details (price, condition, modifications, etc). Write to John at: 185, Rosehill Court, Salford 6, M6 5JW

ATARI ARTIST: Plus other art packages or 1029 printer utilities, on disk. Please describe clearly. Will pay best price offered. Contact Stephen Forsyth, 9 Gannon Road, Worthing, Sussex BN11 2DT. Can't guarantee reply

DISK DRIVE: 1050 in good working order, preferably boxed with manuals. Will pay up to £50. Phone David on: 0977-793386

BOOK: Mastering The Atari ST, £14 offered to cover all costs. Must be in very good condition. Tel: Ilkley (0943)-600413

DISK DRIVE: 1050 with U.S. Doubler. Will exchange for Yamaha Partysound keyboard + power pack VSS100 with sound sampler. Ring: 0204-690259 or write to: Tom Kevill, 6 Hilton Avenue, Horwich, Bolton, Greater Manchester BL6 5RJ

PRESTEL CARTRIDGE: Needed for 130XE. Ring Jeff Woodward on: 021-551-1947

8-BIT SOFTWARE: Autoduel & Printshop on disk. Must be in A1 condition, excellent price paid. Write to: Paul Allton, 66 Combe Park, Yeovil, Somerset BA21 3BE

PENPALS

8-BIT PENPALS: I would like to hear from anyone with an interest in using the Atari with amateur radio, astronomy, and non-game disk-based use. Richard Bridges, Keltenstr. 1A, 6000 Frankfurt/M-56, WEST GERMANY

800 XL PENPALS: My name is Richard and I am 12 yrs old. I have a 800XL/1010 tape deck and lots of games (100+). I enjoy typing in programs. All letters answered. Write to: Richard Boon, 9 Marston Path, St.Dials, Cwmbran, Gwent NP44 4NJ or Phone: 06333-63939

HELP!: Has anyone got a copy of the old Get It Right II from Atari User, either cassette or listing (expenses paid). If so, please ring Paul on: 0533-356587

NEW USER GROUP: I am forming a new 8-bit user group called Atari Addition. We have a bi-monthly newsletter containing news, reviews, programs + loads of other features. For details write to: Atari Addition, 1 Broadmeadow Green, Stowlawn, Bilston, West Midlands, WV14 6EG

8-BIT PENPALS: I have a 130XE with 1050 drive & printer. I would like to hear from any 8-bit user around the world to swap hints, tips, etc. I have 500 software progs. All letters answered. Write to: Didier Stephens, 2 Bis Rue Des Nouillons, LESSY, 57160 Moulins-les-Metz, FRANCE

TURKISH PENPAL: I own a 800XL with 1050 drive and 1010 tape unit. I'd like to hear from any Atari user who is interested in programming, gaming, etc. Write to: Cem Gunal, Dr. Kemal Akguder Cad., 36/11 Erenler Ap., Bostanci 81110, Istanbul, TURKEY

RADIO PROGRAMS: I am looking for programs, hardware, circuits, etc for SSTV, RTTY, PACKET, FAX, etc for my 800XL on tape or disk. Write to: Steve "GW0DWQ", 2 Heol Vaughan, Burry Port, Dyfed SA16 0HF or Tel: 05546-3024

XL/XE PENPALS: Hi! My name is Ivo and I own an 800XL + 1050 + 1010. I would like to swap hints with anyone in the world about programming techniques (demo's, etc) and games. Please write to: Ivo van Poorten, Leenderbos 5, 1447 TR, Purmerend, HOLLAND. (All letters answered)

8-BIT USERS: Fancy writing to me and learning to write your own progs in machine code and get lots of demos free?! I own an 800XL fitted with O/S card + Omnimon chip, 1050 drive. Books I use are Mapping The Atari, Machine Code 1&2, De Re Atari, so get in touch with me to swap hints & tips, etc. Write to: Jim Donald, 55 Carlowrie Place, Gorebridge, Midlothian, Scotland EH23 4XP

65XE OWNERS: I have a 65XE and would like to swap hints, tips and games with any person who writes. All letters answered. Write to: Leslie Trott, 136A East Street, Bedminster, Bristol, BS3 4ET

MAXIMUM 35 words only PLEASE
50 words allowed on PENPALS

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discresion.

Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

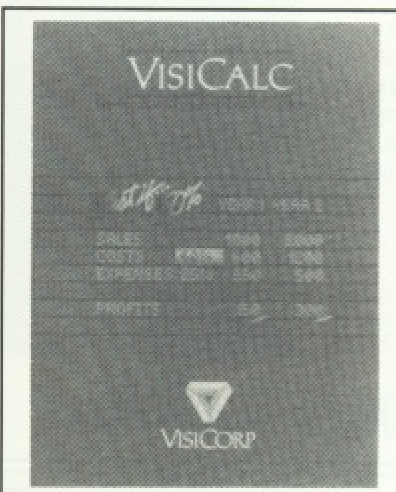
FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

THE ACCESSORY SHOP

ISSUE 45

Some of you may not have seen teh Accesory Shop before. The Accessory Shop is PAGE 6's means of ensuring that your Atari gets the support it needs with public domain softwre, accessories and special offers. Now for the first time the Accessory Shop is able to offer you a whole host of Atari software for your XL/XE and at bargain prices. Whether you use your Atari for serious work or for fun, you'll find something of interest here and many of these programs have not been available for some considerable time. If you bought your Atari recently this is your chance to see just how versatile a machine it really is.

Let's Get Serious



VISICALC

The world famous Visicalc spreadsheet available for your Atari. Visicalc will take care of all of your spreadsheet requirements with all the arithmetical functions you could want on a spreadsheet that is 63 columns wide by 254 rows deep. All major spreadsheet functions are supported and the program even allows split viewing windows.
Visicalc must be one of the finest products ever produced for the Atari and comes complete with superb tutorial and quick reference guide. Believe it or not the original price for this package was £159.95!

DISK ONLY
OUR PRICE £11.95

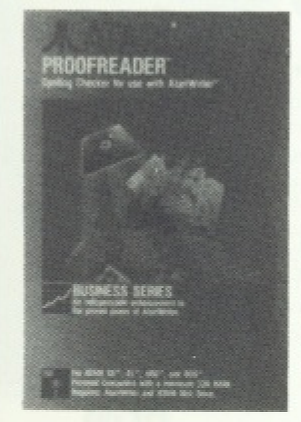


TIMEWISE

Why not use your Atari as an electronic diary? Timewise allows you to keep track of all your appointments and important dates on a daily, monthly or yearly basis. Now you can dispense with your diary and let your Atari do the work. If you have a printer Timewise allows you to print out the information in a variety of ways. Original selling price £22.99.

DISK ONLY
OUR PRICE £7.95

PROOFREADER



Users of Atariwriter will be delighted with this, the long lost spelling checker for the Atariwriter cartridge! Proofreader may be loaded alongside Atariwriter to give you instant access to a dictionary of 36,000 words. If that is not enough you can add your own words as you go. Errors are highlighted on screen for correction, unusual words can be saved and you can look up spellings. Proofreader is the missing link for Atariwriter.

DISK ONLY - OUR PRICE £5.95

TOUCH TYPING



Everyone who uses a computer needs to brush up on their typing and now you can learn to type like a professional typist with this complete tutorial. Touch Typing presents a self paced method of learning by letting you practice typing letters, sentences and paragraphs. The computer determines words per minute, number of errors and your weak points. Random sentences are generated to drill you in those areas. Contains two cassettes and instruction manual. Previously £19.95.

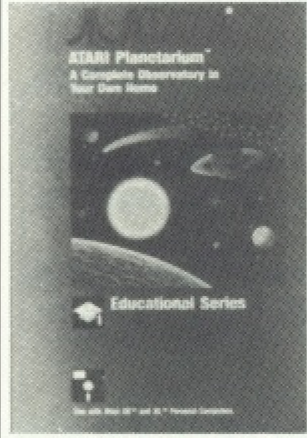
CASSETTE ONLY

OUR PRICE £4.95

Let's Have Fun!

Atari have had some real classic arcade games and originals either written themselves or specially commissioned. Some of these titles have not been available for some time and all are top quality programs to bring you fun and excitement with your Atari.

ALL ROM CARTRIDGES WILL PLAY ON ANY XL/XE SYSTEM INCLUDING THE XE GAMES SYSTEM



PLANETARIUM

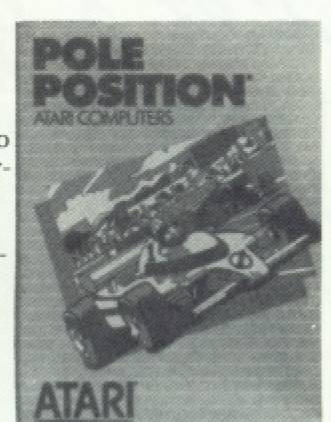
Fun or education? Both really in this fascinating look at the heavens. Over 1200 stars, 88 constellations, the solar system and more than 300 deep-sky objects are depicted in this program that allows you to view the universe. You can make stellar and planetary maps, study eclipses, learn about latitude and longitude, sunrise and sunset against latitude and season and determine navigational position from celestial observations. You'll learn a great deal and you'll have fun while doing it. Includes an excellent manual and guide.
Normally £16.95.

DISK ONLY
requires 1050 drive

OUR PRICE £6.95

POLE POSITION

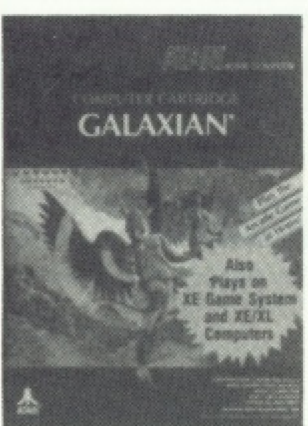
The ultra-realistic graphics and sounds of the Grand Prix explode into your living room in this computer version of the classic arcade hit. Complete a lap in qualifying time, then take on the Fuji raceway and competing drivers in a high speed race. One of the all time classics.
Normally £12.95.





OUR PRICE £6.95

ROM CARTRIDGE



GALAXIAN

Another arcade conversion that retains all of the addictiveness of the original and still stands as one of the all time classics. Blast the galaxians as they advance in formation and peel off to attack. With one or two players and 10 skill levels you'll be entertained for a long time. Includes an easy option for beginners.
Normally £12.95.

ROM CARTRIDGE

OUR PRICE £6.95

PACMAN

Surely one of the best known games? Guide your happy little Pacman through the maze gobbling up dots and fruits while avoiding the ghosts. Gain a bonus PacMan every 10,000 points as you rack up the score. Simple, colourful, addictive and compelling. A classic game.
Normally £12.95.



OUR PRICE £6.95

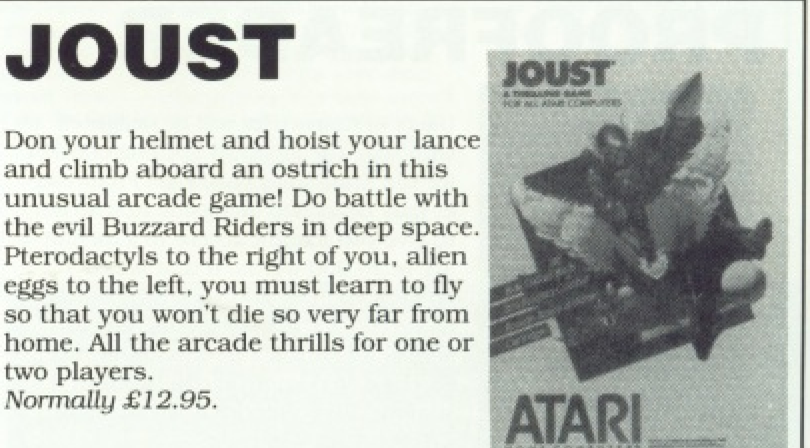
ROM CARTRIDGE

U.S. FOOTBALL

American Football is now a big craze in this country and you can now play at home. Outsmart the defence, pass with amazing accuracy, run with speed and agility, make tackles, select offensive and defensive plays and more. You can take on the computer in a practice game or challenge a friend to a dramatic video bowl game of your own in a packed stadium. All the thrills of the gridiron - without all the bumps and bruises.
Normally £12.95.

ROM CARTRIDGE

OUR PRICE £6.95



JOUST

Don your helmet and hoist your lance and climb aboard an ostrich in this unusual arcade game! Do battle with the evil Buzzard Riders in deep space. Pterodactyls to the right of you, alien eggs to the left, you must learn to fly so that you won't die so very far from home. All the arcade thrills for one or two players.
Normally £12.95.

OUR PRICE £6.95

ROM CARTRIDGE



RESCUE ON FRACTALUS

Ask old hands what was one of the best games ever for the Atari and a good proportion of them will say Rescue on Fractalus. This game from Lucasfilm set new standards in computer games combining a space flight simulator with a rescue mission. Super, ever changing, 3-D scenery as you fly through the mountains to land on the planet and rescue stranded pilots. It's tough and as you get better it gets tougher, but what a thrill to master. See for yourself why many consider this to be the best game of all time. *Normally £14.95.*

ROM CARTRIDGE

OUR PRICE £6.95

BALLBLAZER

Another from Lucasfilm, this top quality split screen game takes place in a games arena of the future. You are strapped into a Rotofoil hovercraft-like vehicle that skims over the surface of the playfield at 50 metres per second. The object is simple, just release your Plasmorb through your opponent's goal - but it takes a great deal of skill and timing! Ballblazer features two-player simultaneous play with first person perspective for both players. One of the finest two player games ever. *Normally £14.95.*



ROM CARTRIDGE

OUR PRICE £6.95



BATTLEZONE

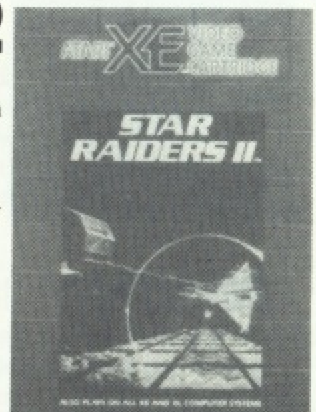
Another cracking arcade conversion that set new standards. You command a tank on the battlefield under attack from enemy tanks and flying saucers. You can manoeuvre through 360 degrees as the enemy attacks from all directions. Watch your radar, turn and blast as the enemy approaches at speed. A direct hit will see the enemy tanks and saucers explode into fragments, but if they fire first, you'll have to outmanoeuvre them. It takes nerves of steel. One player, five skill levels. *Normally £14.95.*

ROM CARTRIDGE

OUR PRICE £6.95

STAR RAIDERS 2

The original Star Raiders is updated with better graphics and sound in this all action space drama in which you must track down enemy craft using your long range scanner and radar. Your job is to clear each sector whilst ensuring that the enemy do not overrun planets in another part of the galaxy. It will take skill in deciding which sector to warp to, can you afford to clear a sector or will you have to leave to defend a planet and return later! Make sure your craft is in good condition and properly fuelled at all times. A great follow up to an all time classic. *Normally £14.95.*



ROM CARTRIDGE

OUR PRICE £6.95



LODE RUNNER

Another classic, perhaps the best of all platform games. You are a highly trained Galactic commando deep in enemy territory. Your mission is to infiltrate all 75 of the enemy's subterranean levels to recover every last piece of gold. You are equipped with a laser drill pistol but you'll need more than that, you need cunning, speed and agility. Lode Runner includes a unique extra that allows you to create your own levels so that the game can go on forever. One of the best. *Normally £14.95.*

ROM CARTRIDGE

OUR PRICE £6.95

MIDNIGHT MAGIC

Pinball on your Atari can become totally addictive as thousands on addicts to the famous Pinball Construction Set will testify. Now you can join in the fun with David's Midnight Magic, all the thrill of the pinball table on your screen. There are flippers, bumpers, drop targets and you can even 'shake' the machine. Watch you don't tilt it! All of the action, sounds, thrills of real arcade pinball for up to four players. *Normal price £14.95.*



ROM CARTRIDGE

OUR PRICE £6.95



ONE ON ONE

Play basketball with two of America's top players in this great sports simulation which features realistic offensive and defensive moves, fatigue factors, hot streaks, a shot clock, even instant repay and a shattering backboard! Like the game of basketball itself, One-on-One rewards you for playing with your head as well as your hands. Master the joystick moves, sharpen your timing and hone your reflexes. Jump! Shoot! Score! *Normally £14.95.*

ROM CARTRIDGE

OUR PRICE £6.95

FIGHT NIGHT

Fight Night brings you all the thrills of the boxing ring as you face five of the most brutal fighters ever. Its five separate battles are total war with relentless action. The Boxing Construction Set allows you and your opponent to create your own perfect boxers, selecting stamina, intellect and style. Train, spar and step into the ring to pit your perfect boxer against the computer or another opponent. For one or two players. *Normally £14.95.*

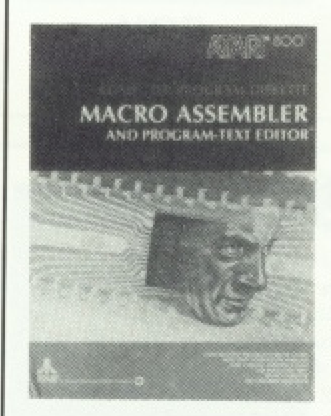


ROM CARTRIDGE

OUR PRICE £6.95

Let's Be Creative!

Learn to program, it will make you Atari come alive. Even if you are only able to write short program you will experience the joy of creation and once you start, you may well want to go on to become an accomplished programmer. If you already know Basic, maybe now's the time to learn machine code.



DISK ONLY

MACRO ASSEMBLER

The Macro Assembler will allow you to create your own machine language games and applications five times faster than with the Assembler Editor cartridge and it can assemble as many as 1600 symbol definitions with no limit on program size. You can duplicate code, optionally assemble code and modularise your program. You can define symbols and macros in a library file and access them allowing you to create modules that can be used time and time again. The Program-Text Editor included has all of the features of a word processor enabling you to write your programs much more conveniently. Unleash the power of your Atari with Assembly Language programs. Includes two reference manuals and a quick reference card.
Normal price is £19.95.

OUR PRICE £7.95

BASIC CARTRIDGE

Why would you want a Basic Cartridge when Basic is already built in to your machine? Well some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic. Much more convenient than having to boot in the old Basic from disk and, at this price, worth having just as a backup. We will not be having more stocks of this item so now is the time to buy.

ROM CARTRIDGE

OUR PRICE £3.95

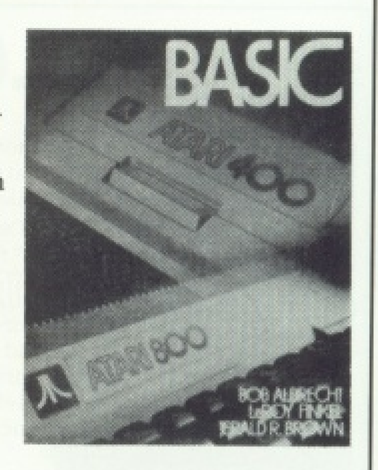
EASY PROGRAMMING FOR YOUR ATARI MICRO



This book went out of print 3 years ago and we have been searching for a replacement ever since. We are absolutely delighted to have found more stocks of one of the best beginner's books ever published. Over the past couple of years whenever someone has phoned for a beginners book on programming we have advised then to try and find a second hand copy of this book - now you can buy it once again, brand new! By the end of this book you'll be writing your own programs, including those with full graphics and sound.

OUR PRICE £5.95

ATARI BASIC



A self teaching guide to programming in Basic that includes dozens of lessons and self tests. If you want to learn Atari Basic properly, step by step, rather than just playing about with programs, this tutorial approach is the way to do it. You'll pick up a full understanding of such things as Read and Data, If-Then statements, For-Next loops, subscripted variables, arrays, string variables and more. The approach is somewhat academic but if you work through the book you will not only be able to write programs, you'll understand exactly what you are doing and that is fundamental to putting your own ideas into a program. The book that the editor used to learn Atari Basic! *Originally priced at £14.95.*

OUR PRICE £5.95

NOTE: The outside of these books are slightly dirty but the books are not damaged in any way

INSIDE ATARI BASIC

If you fancy dabbling with programming but are not sure of your capabilities try this excellent little beginners book at a bargain price. The book takes you through every stage of programming at an introductory level showing you just enough to get you started. If you get hooked then you can always go on to a more advanced book. Ideal for youngsters or the complete novice. Over 180 pages.

OUR PRICE £2.50

NOTE: The outside of these books are slightly dirty but the books are not damaged in any way

400/800 FIELD SERVICE MANUAL

Your last chance to obtain the 400/800 manual and at a special price. We have now picked up Atari's last stocks of this excellent service guide that is also partly relevant to the XL/XE. Contains circuit diagrams, repair information, service bulletins and much more. A great resource for all techno-buffs. *Last few copies.*

OUR PRICE £9.95

PUBLIC DOMAIN

The Page 6 XL/XE Library carries a huge range of top quality public domain programs on disk - everything from games to utilities to applications. If you have a disk drive and haven't had a copy of our full catalogue, you don't know what you are missing. Ask for a copy.

Here are the new disks available with this issue. All disks are £2.95 each except where shown otherwise.

THE NEW LIBRARY DISKS

Disk #139 - TANK MATHS

A very nice tutored maths exercise for children that will have them hooked as they learn. Although aimed at pre-school up to about 7 or 8 years old, older children and adults may find it useful for practising mental arithmetic. The problems include Addition, Subtraction, Multiplication, Division and Multiplication and Division tables are included. There is even a Roman numeral quiz that everyone will find useful. The program presents problems that the student has to answer. With every correct answer your tank will blow the question out of the sky whilst incorrect answers are counted down as the correct answer is shown. This is a shareware program and the questions are set at certain levels but will provide adequate practise. A multiple level version is available from the authors. A very nicely presented educational program.

Disk #140 - EARTH SCIENCES 4 - ROCKS AND MINERALS

The next tutorial in the earth Sciences series covering the subject of Rocks and Minerals and including Minerals, The Hardness Scale, Igneous Rocks, Sedimentary Rocks, Metamorphic Rocks and Weathering. The same format as earlier disks with questions and multiple choice answers. Perfect for students and fascinating for others as a way to improve your general knowledge. If you have followed the entire series, you might soon be ready for Mastermind!

Disk #141 - PIXEL ARTIST DE LUXE

A really top-class drawing program that has some unique features. Everything you might need in a paint package is here, including full on-screen help. You can change colours, brushes and spray patterns, change the speed of your brush, draw with line, box, oval, fill or rays and there is an excellent zoom facility (the best we have seen on a paint program) as well as Undo facilities and more. You can use a Joystick or Touch Tablet and save in Koala or Micropainter format. There are keyboard shortcuts and up to 10 configuration files may be saved to disk. Altogether a top quality package that can compete with any commercial program.

THE NEW DISK SPECIALS

DS#51 - THE HOBBY-TRONIC DEMO

(Requires 1050 or XF551 drive)

A great new demo from West Germany created by one of Germany's top Atari clubs. There are six demos with great music throughout - a great welcome screen followed by a five level parallax scrolling demo that would be the envy of many ST owners and then a nice graphics and mixed sampled sound demo that includes a great pixel sine wave demo. Next there is the Monster demo with bouncing sprites, a starfield and great music followed by a beautiful, smooth, hypnotic pixel demo with hundreds of superb patterns, all finished up with a simple graphic demo with a German scroll but some great percussive music. These demos are great, you won't believe your Atari can do so much

DS#52 - GOLDHUNT

Great role playing action in your choice of dungeons. You have to find a bag of gold within each room whilst avoiding traps and other hazards and return to the exit where you may travel to other levels or simply return home. The screen is divided into two parts, the square window which shows your position and everything you can see from your location and the lower part which allows you to enter commands for each of your moves. There are items you can carry, including a scanner, a torch, a magicians wand and you will need them all. Within each dungeon there are statues, fountains, bridges, doors and tapestries all of which play a part in your quest - you must learn how to cope with each one. There are dozens of ready made dungeons plus an Editor which allows you to create your own. Goldhunt is an excellent program of commercial quality that is impossible to describe in detail in a short space. The disk contains a comprehensive explanation of the game. An excellent game, one of the best of its type in the public domain, and well recommended.

DS#53 - INFANTRY SQUAD

Something quite unique for the public domain, a fully fledged wargame with all the features you would expect from a commercial program. In fact this was once a commercial program and is now released to the public domain. Infantry Squad is a one player game of tactical skill played on the squad level. You have an Infantry Squad made up of a Squad Leader, two Fire Teams and an Armoured Personnel carrier equipped with a machine gun. Your mission is to completely eliminate all enemy units from the battlefield while ensuring that your men survive. Your final score is based upon the amount of damage your men sustain. All of the usual features of wargames are included and you may also design your own battlefields with the built in Drawing package. Again this is a complex program that cannot be explained in a few words but it comes with full instructions on the disk. Essential for dedicated wargamers and a great, low cost, introduction for those who have not sampled strategy games. Infantry squad is a top class program, give it a try.

DS#54 - THE 8-BIT REFERENCE GUIDE

With many of the best reference books now out of print, this disk based reference guide is more than welcome. A superb tutorial that may be printed out with a word processor or read direct from the disk with the viewer program supplied. The guide covers the whole spectrum of Atari programming including The Central Input/Output Utility, The Disk Operating System, Using DOS 2, The Cassette Handler, The Keyboard Handler, Printer Handler, Screen Editor, The display Handler, The Resident Disk Handler, System Interrupts, The Floating Point Arithmetic Package, Boot Software Formats, The Serial Input/Output Interface, The Hardware Chips, Display Lists, Player Missile graphics, Sound, The Joystick Ports and more. As you will see from the subject matter the guide is aimed at the more advanced user but it contains material that will be useful to anyone who wants to program the Atari effectively. A very comprehensive coverage of the machine with much information that is now difficult to obtain elsewhere.

The 8-BIT REFERENCE GUIDE is a THREE DISK SET price £6.95

COLLECTION No. 7

Our latest top value collection comprising Disks 121 to 140 from the library on 10 double sided disks that can be used on any drive. Collection 7 includes a FREE BONUS disk of Graphics and Sound Demos and comes in a useful storage box.

PAGE 6 Collections represent great value saving £20 on the individual price of the disks!

Treat yourself or a friend
Collection 7 - just £30

ORDER FORM
ALL ITEMS FOR XL/XE

SOFTWARE

Quantity	Title	Price	Total
	VISICALC	£11.95	
	TIMEWISE	£ 7.95	
	BASIC CARTRIDGE	£ 3.95	
	MACRO ASSEMBLER	£ 7.95	
	TOUCH TYPING	£ 4.95	
	PLANETARIUM	£ 6.95	
	PROOFREADER	£ 5.95	
	POLE POSITION	£ 6.95	
	GALAXIAN	£ 6.95	
	PACMAN	£ 6.95	
	U.S. FOOTBALL	£ 6.95	
	JOUST	£ 6.95	
	RESCUE ON FRACTULAS	£ 6.95	
	BALLBLAZER	£ 6.95	
	BATTLEZONE	£ 6.95	
	STAR RAIDERS 2	£ 6.95	
	LODE RUNNER	£ 6.95	
	MIDNIGHT MAGIC	£ 6.95	
	ONE ON ONE	£ 6.95	
	FIGHT NIGHT	£ 6.95	
		Total	

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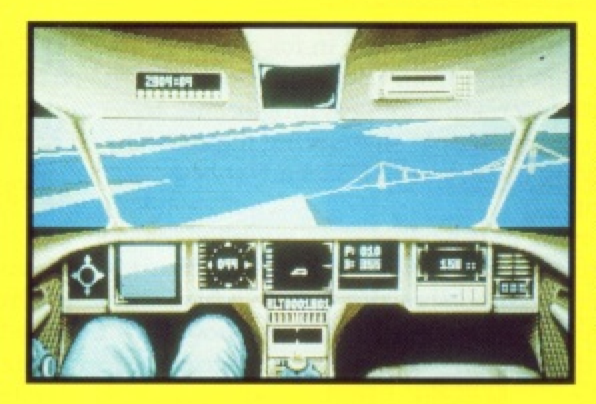
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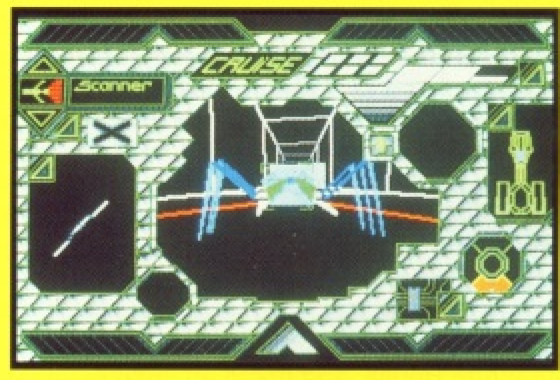
Let's start with the programs shown in the pictures on the right. First up we have MEAN STREETS from U.S. Gold which looks as if it might be the forerunner to a new genre of ST games that combine several popular types of game into one. It is basically an interactive adventure in which you have 27 animated characters to meet and talk to, in fact some of them do actually talk using digitised speech! Add to that a flight simulator to get you from city to city and action packed shoot-outs when you meet some unsavoury characters and you have a fairly unique game. From Mindscape comes a real weirdy, LIFE AND DEATH in which you play the part of a surgeon in a simulation that puts the scalpel in your hand and lets you play God. You have to read charts, diagnose, order blood tests and then decide when and how to operate - and when you do, it's all there in living colour! The faint of heart had better stop reading now! On a more conventional level is Harley DAVIDSON:THE ROAD TO STURGESS in which you jump aboard the world's most famous bike on a trip to the year's biggest biker rally in Sturgess, South Dakota. Along the way you'll meet some real dudes of the road to swap some tales, then it's on to biker games including drag racing, slow rides and hill climbs. All the fun of a Harley Davidson without shelling out several grand for the bike! MAGIC FLY from Electronic Arts is a space flight simulator-cum-blast up which finds you on the edge of the universe piloting a craft that has been evolved from some of natures invertebrate beasties. You have 30 different alien craft to overcome in combat using 10 types of weapon all set in a labyrinthine network of tunnels. If you don't like space, a platform game called FLOOD might appeal. This program has been designed with the younger player in mind and relates the sad story of Quiffy, a slightly overweight wee green Blobbie! You have to keep Blobbie from the nasty creatures that have invaded his underground home whilst at the same time trying to avoid the flood. Electrocoin are making a big splash press wise with conversions from the arcades and the first release TIME SOLDIER is now out. A fight through time from Primitive Man through Ancient Rome, Medieval Japan, World War 3 (I don't remember that one) up to Future World. Should save a lot of 10p's in the arcade. Electrocoin's next is MR DO! RUN RUN one of the old classics brought up to date and retailing at just £14.99. Domark continue with their licences utttering the proud cry 'Bond is back' heralding the release of THE SPY WHO LOVED ME in which you have the chance to wrestle with the evil Jaws and rescue Anya Amasova. Lots of chases in the Lotus Esprit, speed boats and jetskis add to the fun. U.S. Gold are promising something special with GOLD OF THE AZTECS written by an ex-Psygnosis designer and featuring some 9,000 frames of animation of which 1,500 are reserved for the hero. 80 screens of puzzles, tricks and acrobatics with, they claim, over 26 megabytes of graphics crammed on 2 disks. Continuing the contest of 'who can put the most into a program', U.S. Gold also have MURDER which they say contains over 3.5 million unique murders for you to solve! Looks like you'll have to do a Jack Kipper and retire with one or two still outstanding. If you know the game Cluedo, you'll know exactly what to expect. Psygnosis are always worth looking out for and they have more just out including ANARCHY by the author of Baal, claimed as the world's fastest shoot 'em up game for the ST, and MATRIX MARAUDERS ' a new concept in super-fast 3D abstract racing games'. There is too much involved to tell it all but it looks interesting, two computers if required and a talking navigator. Not, apparently, a game for the novice either - you have to be good before you start! To finish up, look out for KNIGHTS OF LEGEND from Mindscape, apparently 8 years in development and offering 'the most comprehensive combat system ever incorporated in a role playing game'. There you have it, the biggest, the best, the longest developed, the most advanced software yet for your ST, until the next issue, that is!



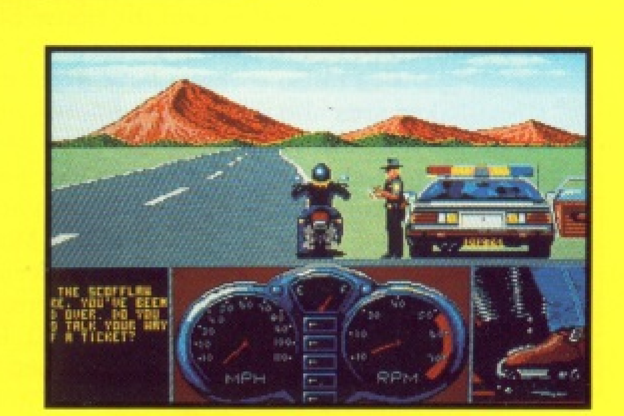
MEAN STREETS - a whodunnit, flight simulator, arcade shoot out and adventure all in one game!



LIFE & DEATH - no this is not a naughty picture, it's an operation, honestly!



MAGIC FLY - crimebusting on the edge of the universe with the Magic Fly squadron



HARLEY DAVIDSON: THE ROAD TO STURGESS - customised bikes, biker games and lots of laughs

AMATEUR OR PROFESSIONAL?

John S Davison has been flying FS2 again

Flight Simulator II (FS2) enthusiasts are in for another treat with these new offerings from Compute! Books. Both are packed with interesting and exciting scenarios for you to fly, ranging from short, simple sightseeing flights to long, complex flights involving much use of FS2's advanced radio navigation equipment.

Scenarios are set up by keying in the editor data supplied for each flight, and then you're "talked through" the flight as it happens. Some of these verbal comments run only to a few lines, but others (particularly in the commercial flying book) amount to many pages of detailed instructions and descriptions of what to look out for.

A FLIGHT SIMULATOR ODYSSEY
Charles Gulick £14.95

This book is by that most dedicated of FS2 pilots, Charles Gulick, and is his SIXTH book on the subject. It contains 126 scenarios spread over the basic scenery supplied with the FS2 program and three of the accessory scenery disks.

There are 12 flights using the original scenery supplied with all versions of FS2, plus a further 11 in the San Francisco Bay area (standard with the ST version, but available as an accessory disk on 8-bit machines). Amongst other things, you'll view the Statue of Liberty, fly between the massive twin towers of Manhattan's World Trade Centre, and perform precision landings at Tacoma Narrows near Seattle - the airport with the built-in water hazard! In the San Francisco area you'll land on a dock at the famous Fisherman's Wharf, buzz the control tower at Livermore airport, and fly THROUGH one of the giant airship hangars at Moffett Field!

Scenery Disk 7 covers a huge region, extending from just below the New York area right down to Key West at the tip of Florida. The 37 scenarios cover it all, including landing on Washington Mall near the White House, and doing an engine-off landing from 10,000 feet on the Space Shuttle Landing Facility at Cape Canaveral - just like a real Shuttle pilot would.

Scenery Disk 11 also covers a large area, this time in the Great Lakes area and extending up into Canada. The 23 scenarios here include participation in a new sport - glider chasing - to find the gliders flying at four locations on this disk. You'll also visit the Niagara Canyon and its famous Falls; and land at Johnstown in the Allegheny Mountains.

The Western European Disk is the one we were all waiting for, and Charles Gulick has given it the full treatment. The 42 scenarios show you the sights of England, France, and Germany, and how to visit areas not described in the FS2 instructions - such as Iceland, Tangier, Greece, and Italy. You'll view the English chalk giants, such as the White Horse of Uffington; go sightseeing over London and land in Regent's Park; see the sights of Paris; visit the cities and mountains of southwest Germany; and land in the Kremlin Park in Moscow!

In summary, the book is a highly enjoyable way of quickly getting to know those scenery disks. If you have the disks, you need this book.

REALISTIC COMMERCIAL FLYING with Flight Simulator
John Rafferty £14.95

Charles Gulick's books are written from the viewpoint of the enthusiastic amateur pilot, but John Rafferty takes things one step further. Here he attempts to show you what the professional pilot's world is like.

To begin with you're taken through four 'check rides', to ensure you have all the skills for both basic and instrument flying before progressing to your first real assignment. There are 26 'real' flights, covering air taxi operations, commuter flights, aircraft ferrying flights, air express deliveries, night mail operations, and even an aerobatics demonstration at an airshow in California.

Each flight begins and ends at a real-world airport in the basic FS2 package (no scenery disks needed), and is planned on the basis of a realistic weather briefing. You also have to contend with changing weather conditions during the flight. Before a flight commences you produce a proper flight plan to obtain an IFR (Instrument Flight Rules) flight clearance from Air Traffic Control. Once under way, you receive all instructions from ground, tower, and en-route controllers in the crisp, authentic ATC manner. Real FS2 nuts would probably want to record these communications onto tape and play them back over headphones at appropriate points to simulate real radio communication!

The book also contains sample blank flight planning and log forms, and Victor Airways charts and IFR approach plates for each of the airways and airports used.

It needs considerable skill to fly these scenarios accurately, so this book is not aimed at the absolute newcomer to FS2. However, once you've mastered the basic flight skills you should soon be able to manage them.

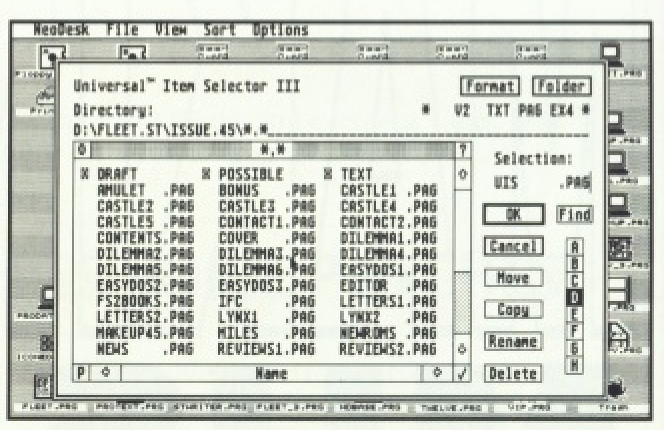
Overall, the book provides a fascinating insight into the world of the professional pilot and provides yet another way of extending the scope and use of FS2. Highly recommended for all serious FS2 fans.





Both of these books are available from the PAGE 6 Accessory Shop.

UNIVERSAL ITEM SELECTOR



The default setup of UIS with 36 filenames - text can be made smaller and the selector box can be adjusted to show less files

There is a great little utility in the public domain called The Little Green Selector that knocks spots off of the item selector built into GEM and is still far better than Atari's 'improved' selector found in TOS 1.6. If you don't already use it, you should.

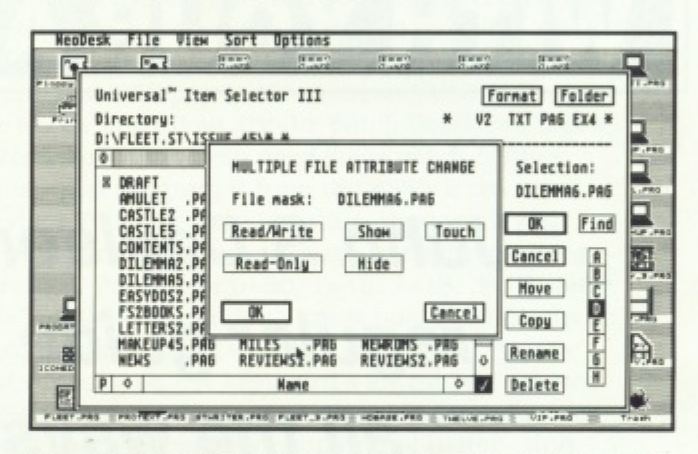
So, with a good PD file selector, why should you consider spending money on a commercial product such as the Universal item Selector? Simply because it takes the basics of an alternative file selector and improves upon it tenfold turning a simple selector box into an almost indispensable utility than any serious user will not want to be without. The Universal Item Selector is installed when you first start a working session, either by placing in an AUTO folder or by running the program. Nothing much happens until you run another program that needs to access a disk. As soon as this occurs, UIS takes over and you are presented with a huge selector box that enables you to see up to 36 filenames at once. If 36 is too many then UIS can be configured to show 12 filenames in two different formats and any configuration chosen can be saved to run automatically next time you boot up. So, you can see more filenames, there must be more to it than that?

Let's start with the utilities. UIS lets you move, copy, rename or delete any file without opening windows and without having to be within another program. In fact all the utilities are available whenever UIS is called whether you have a blank desk top or are in the middle of some word processing or other work. A handy accessory that comes with the program enables UIS to be called at any time and all the utilities can then be used. In practice, you will often find yourself wanting to load a file for a particular application and discovering that other files can be deleted or would be better renamed. No problem with UIS, just do it, even if the program you are using does not support these functions. If you need a new folder, just create it. Other utilities include formatting of disks and printing of a directory plus the ability to lock or hide files, either individually or en bloc. All of the utilities can be used in this way so if you want to copy or move a whole directory it can be done, and even if you cannot see all of the files at once.

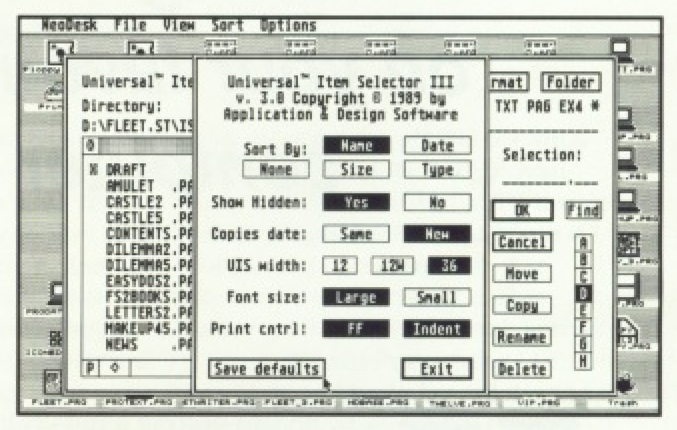
User of hard disk will find UIS a real boon, particularly if they use a number of partitions and many folders. Any directory path can be assigned to a function key so that this path will appear in the selector window whenever the appropriate key is pressed and these key assignments can be saved so that they load as defaults whenever UIS is installed. As an example, in preparing this issue I have a folder on drive C named FLEET.ST which in turn contains a folder named ISSUE.45 which in turn contains folders named TEXT and DRAFT. I need to access all these plus similar folders for the last issue together with other folders in a PROTEXT folder. Doing it the conventional way of closing down through levels and opening up again takes ages but with UIS I just press one key. Brilliant! And what makes it better is that I can still use the function keys with Fleet Street for other purposes. UIS does not interfere in any way with other programs.

Another useful feature is the ability to select up to four 'user definable' extensions so that only files with the selected extension appear in the window. You can at any time select other defined extensions and you can use these extensions or another selected template to search for any file. Defining extensions is extremely simple as is every aspect of using UIS, there are no complicated setting up procedures, everything is done from within the selector box. It couldn't be easier to use.

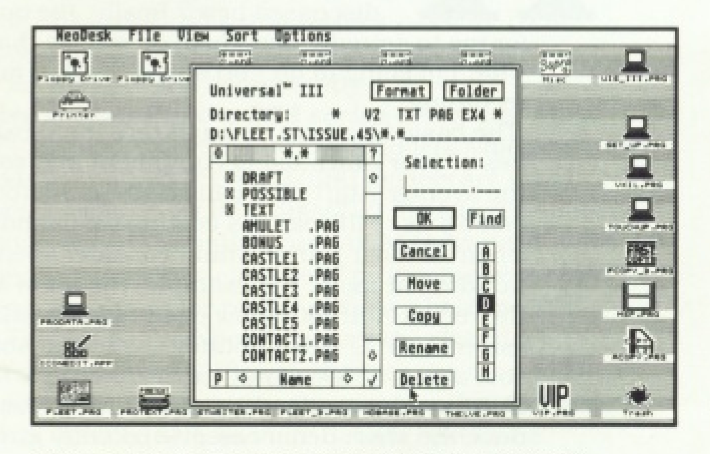
There are many more refinements to UIS which enhance the program even more, in fact you will probably forget to use some of them, but the basics outlined make it well worthwhile for every serious user. Like NeoDesk, once you have used it you will not wish to go back to the poor substitute of GEM.



File attributes can be changed, either as individual files or en bloc. Other utilities allow files to be moved, copied, renamed or deleted



Universal Item Selector can be configured easily to suit your preferences - your chosen configuration will be booted next time you use UIS



The smallest window available gives just 12 files to view - the window can be positioned anywhere on the desktop

Universal Item Selector is available from The ST CLUB, 49, Stoney Street, Nottingham, NG1 1LX price £15.95

reviewed by Les Ellingham



John S Davison's regular guide to all the ways of making music on your favourite computer

How do you portray a musical sound in words? That's a problem I have in writing this column - how to describe the sounds produced by the hardware and software discussed here? Really, the only answer is for me to actually play them to you, so that's exactly what I'm going to do - on a new PAGE 6 audio cassette recording.

The basic idea is to demonstrate the musical capabilities of your Atari, using equipment and software that the average Atari user can relate to. All too often music demo's use MIDI setups costing thousands of pounds, when all most people would consider spending is a few hundred at most. For example, the main MIDI demo at the recent Atari 90 Show used twin Roland D50 synthesisers with C-Lab's Notator sequencer software - total cost about £2500. Another instance was the Yamaha SY77 synthesiser and Notator software used to produce the short demo cassette recently given away free with ST Format magazine. Once more total cost was around £2500. These setups certainly sound impressive, but are hardly a practical proposition for most enthusiasts.

Our project starts from the opposite end of the scale (if you'll pardon the pun), showing you how to tap the musical potential of your Atari without spending a fortune. It covers several different aspects of computer music making, using only relatively low cost software and hardware - and you actually get to HEAR the sounds they can make!

Don't expect a quick, flashy demo. The cassette runs for an hour, and explains a little of the background to the Atari's sound chip and to MIDI, and demonstrates the sort of musical sounds anyone can easily create using either approach. Although the accent is on MIDI, the action begins simply, using the sound chip, and builds up to full multi-timbral MIDI sequencing using the Yamaha PSS-680 and YS-200 instruments, playing many different musical examples along the way. Side 1 of the tape is aimed at the 8-bit user, and Side 2 is oriented more towards the ST, but there's enough common material throughout to make both sides interesting to everyone (at least, that's what I intended!).

LOW COST PRODUCTS

In keeping with the low-cost approach, I've used music products distributed by PAGE 6 wherever appropriate, demonstrating firstly that they do actually work rather well; and secondly what great value for money they are. I will admit to briefly using a few non-PAGE 6 commercial products though. These include Steinberg's Twelve sequencer for the intro and outro music, plus Activision's Music Studio and Electronic Arts' Music Construction Set to edit some of the music files.
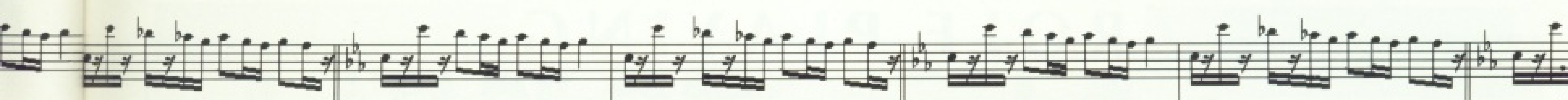
On the 8-bit front you'll hear Composer's Jukebox playing Advanced Music System music files via the 8-bit's sound chip; compare music played by the sound chip and via MIDI and experience for yourself the difference MIDI makes; hear MIDI Master playing AMS files via MIDI, plus music created with its own real-time sequencer; and compare the sounds made by an inexpensive MIDI instrument like the PSS-680 with a more upmarket (but still relatively low cost) keyboard such as the YS-200.

On the ST you'll hear the Music Construction Set Player Program playing MCS music files via the ST's sound chip; the Music Studio Player Program playing MS music files via MIDI; custom built PSS voice patches created with PatchEd and PSSED; music produced with the Cosh real-time sequencer; and even an AMS music file from the 8-bit machine played on the ST (yes, on the ST!) with the help of Tari-Talk and a public domain music file translation utility!

At the time of writing I'm creating the final stereo master tape, so copies should be available (gremlins permitting!) by the time you read this. I hope you enjoy hearing PAGE 6's World of Computer Music Making as much as I've enjoyed creating it. If you do, why not try creating some music yourself?

THE COSH SEQUENCER

As promised in the last issue here's a report on another first class piece of software recently added to the PAGE 6 PD library. This is the Cosh sequencer, named after its author, Henry Cosh of Crowthorne, Berks. Henry used to play piano accompaniment to his wife's singing, but sadly a recent illness left him only able to play using one hand. His solution was to replace his piano with a Casio HT-3000 MIDI keyboard and to write his own sequencer software to allow him to record the part for each hand separately, and play them back together from his 1040ST.



This program has all the usual basic sequencer features plus several not usually available at the budget end of the market, let alone in PD software. It also has a few idiosyncrasies, and dare I mention it - the odd bug or two!

Fundamentally, it's a 16 track real-time sequencer which can handle up to 32 note polyphony, i.e. a maximum of 32 simultaneous notes across all the tracks. Each track can have a MIDI program number, input channel, output channel, note range, volume range, input filter and output filter associated with it. There's also a software MIDI THRU function, which makes multitimbral recording easier.

One interesting feature is that it can record on multiple channels simultaneously. BUT - before you think you can now record the multi-channel automatic accompaniments from instruments like the Yamaha PSS-680 there's a small snag to consider. The author has dedicated MIDI channels 14 through 16 to the ST's internal sound chip! Aaagghhh! End of great idea, as these are the channels used by some of the the PSS's auto-play features. You can't use the PSS's drums either, as these work via channel 16.

Another slight niggle is that it only handles MIDI Program Numbers up to 96, which means you can't address the PSS's top three preset voices or, more importantly, the five user patch memories. OK, so Cosh isn't ideally matched to the PSS-680, but you can still do a lot with it.

One unique feature is the program's music map. This is a graphical indication of what's on each track, shown on a bar-by-bar basis across a horizontally scrollable display. It's not in musical notation and you can't actually see the MIDI data, only whether there's anything present or not, indicated by small markers in appropriate positions in each bar. However, you can zoom in to any section of the map until markers for individual notes become visible. Then, by defining a "fragment" of the music by drawing a highlighted block round a group of note markers and using the "audition" feature to listen to them, you can do your editing by ear.

As the music plays, a cursor moves across the map to show you the current playback position. Unfortunately, the map doesn't automatically scroll when the cursor hits the edge of the screen, but the music does continue playing. You can manually scroll the display using the map scroll bar, but this temporarily interrupts the music playback. This is no great problem though, as normally you only need to do this while editing, when a slight interruption in playback doesn't really matter.

A fragment can be operated upon by a set of block functions, allowing you to quantise, randomise (unquantise), move, copy, clear, transpose, alter velocity, and filter MIDI data from it. The filtering can be set for pitch bend, aftertouch, pitch range, volume range, or specific MIDI controller number. You can also do punch-in/punch-out recording at the fragment level, allowing you to replace any section of any track with a new recording.

There's also an "auto-punch" function allowing the replacement of single notes and chords, but I couldn't persuade this to work on my old 520STM, and repeated attempts caused the program to crash or lock up. This is one bug that really should be fixed, as auto-punch should make detailed editing very much easier. You can still achieve a similar result using the normal punch-in/punch-out method, although not quite so easily.

Other features include the ability to change time signature and tempo within a song, to merge song files, to synchronise the sequencer to an external clock signal such as that produced by a drum machine, and to drive a drum machine in synchronisation with the sequencer. All-in-all it's one helluva package for just £2.95! Actually, this program is shareware rather than true public domain software. The author asks that you send him a donation of £10 if you like the program and use it regularly. Even at £12.95 it's still excellent value, and offers an unbeatable introduction to real-time MIDI sequencing.

THOSE PSS VOICE PATCHES!

Where are they? I've been totally underwhelmed by your response to my request for PSS voice patches a couple of issues back. I've not even received ONE! So what are you all doing with those voice patch editors you've bought from PAGE 6? Surely you've each produced at least ONE passably decent patch by now? I know there's somebody out there reading this column as some of you have written to me. So come on, don't be shy! Get off your butt, load up PatchEd or PSSED, and try to create just one new PSS patch. Yes, I mean YOU!

If the creative juices won't flow, try the patch described below to get you started. You don't even need voice patch editing software for this - just program it from the PSS's front panel.

Select preset voice 79 (Mute Bass) to start, then work your way up from voice parameter zero through to eight, inputing the following values. Parameter 0=50, 1=45, 2=18, 3=15, 4=00, 5=01, 6=07, 7=75, 8=92. If you don't know how to do it refer to the PSS's instruction manual. I've called the result "Punchy Bass", and if you play it on the keyboard's lowest two octaves you should hear a good solid bass sound with a strong attack.

Now experiment and try to produce something better - and when you do, please send me the results so we can all share them! You'll even get a mention in this column! Fame at last?

SNIPPETS

....As you've no doubt seen from the adverts, PAGE 6's MIDI Master music package for the 8-bit machines is finally available. So, now's your chance to get into the world of MIDI music without having to buy an ST. More details in the next issue if I can find the space. And don't forget you can also hear it in action on the new PAGE 6 audio cassette described earlier.

....One of the best books explaining MIDI I've yet come across is "What's MIDI" published by Track Record Publishing Ltd., and available by mail order from Making Music (no relation to this column!). It costs £4.95 including postage - phone 071-251-2622 to order your copy. Its 139 pages are packed with everything you could want to know about MIDI, and is highly recommended reading for all MIDImaniacs. Other books in the series cover buying and using 4-track cassette recorders, guitars, and drum kits, and all seem to cover their subjects very thoroughly and competently..

....Yamaha are revamping the PSS series of low cost MIDI keyboards YET AGAIN! The PSS-580/780 models which recently replaced the original PSS-480/680 models are now themselves being replaced by PSS-590/790 models. The latest instruments incorporate Yamaha's new AWM (Advanced Wave Memory) technology, which is capable of producing very realistic imitative sounds - great for piano, strings, choir sounds, etc. If they're as good as their predecessors they'll be ideal MIDI beginners' instruments. Expected prices are around £150 and £230 respectively. I hope to see them at the British Music Fair (at Olympia, 20-22 July), so more details next issue.

- **THE COSH SEQUENCER** *is available from The Page 6 Accessory Shop for £2.95. Write to PAGE 6, P.O. Box 54, Stafford, St16 1DR or telephone 0785 213928.*
- ***See page 18 for details of the WORLD OF COMPUTER MUSIC MAKING tape***

ULTIMA V
WARRIORS OF DESTINY

Back in 1986 I spent a couple of hundred hours playing an amazing Fantasy Role Playing game called Ultima IV - The Quest of the Avatar on my 800XL. At the time I thought it was the best computer game I had ever played (see my FOUR page review in issue 23 for the details!) so I was delighted when in November 1987 I saw an ad for Ultima V - supposedly even bigger and better!

November 1988 came and went and there was still no sign of it on any Atari (it was out on Commodores and Apples), likewise November 1989. But now it is finally here (ST only - sorry all you 8-bitters)! Was it worth the wait? You bet - it is every bit as good as its predecessor.

In Ultima V you play the part of an Avatar (basically a good guy!) called to a strange land to find and rescue the king, Lord British, lost in the shadowy Underworld. Along the way you will find numerous mages, bards, and fighters who will offer to join you in your quest. You can have six characters in your party at any time, leaving surplus ones to rest in inns until you need them again - beware, not every who wants to join you is a good guy!

Ultima V is basically keyboard-driven. As well as moving your characters around with the arrow keys, you can issue 24 commands such as Attack, Board, Cast, by typing the first letter. Further input is provided by either selecting from menus or typing in single words to carry on conversations (N.B. you only ever need type the first four letters of a word during a conversation).

There are lots of shortcuts to enable you to speed up the play, such as nominating an active character to perform all the actions (especially useful at the ends of fights for examining treasure chests or exploring dungeon rooms for secret panels!) and the fact that it remembers which monster each character is fighting and re-aims weapons ready for the next blow.

Some of the menu accesses are not quite as friendly as in Ultima IV, partly because V is more sophisticated, but also partly because they didn't think hard enough about it - it gets really boring having to scroll through twenty items to reach your watch so that you can check the time!

There is no need for quick reflexes in this game, it always waits for your next input before continuing with the action. That doesn't mean that it doesn't get the old adrenalin flowing - it is amazing how tense you can get trying to polish off a roomful of demons and dragons before your guys die!

The variety within the game is superb: there is a vast wilderness to explore, both land and sea, using skiffs, frigates, horses, or more exotic forms of transport; dozens of towns, castles, keeps and lighthouses to trade and converse in, some of them with as many as five levels; eight perilous dungeons to explore, each with dozens of "rooms" full of monsters, traps, treasures and secrets scattered over eight levels of twisting corridors, ladders and pits.

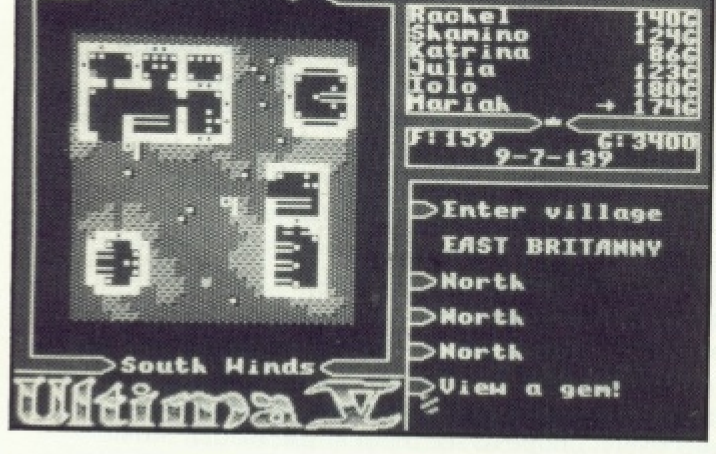
Deep in the earth there is another vast wilderness of caverns, tunnels and underground waterways - always dark, treacherous and deadly!

If you want arcade style fighting then stick to DungeonMaster and its clones and sequels. But if you want something with a bit more depth then there is nothing quite like an Ultima! By the time I finally completed Ultima V I had covered over sixty pages with notes, maps and tables! The detail is amazing throughout - in the fights where all your characters and the monsters take it in turns (according to dexterity) to wield weapons and spells at each other - in the towns where long conversations lead you on trails around the world in search of magical artefacts and secret words - in the spell casting, requiring you to mix the right components and say the correct words - in everything!

Do SAVE and backup regularly - there are countless perils, plus a few little bugs - I usually only SAVE once I am sure I can get out of wherever I am, and that I still have all my important possessions!

Ultima VI is already out on the IBM, hopefully the wait won't be as long this time as Mindscape are already confidently predicting an Autumn Atari release.

- ***GAMEPLAY** - Nearly perfect!*
- ***GRAPHICS** - Excellent, lots of detail and atmosphere.*
- ***SOUND** - Choose between music (lots of tunes to suit the occasion) or countless sound effects.*
- ***VERDICT** - If you have any interest at all in D&D or FRP and a couple of hundred hours to spare then this is for you! A fitting sequel to Ultima IV - still the best game series in the world!*



Title:	**Ultima V - Warriors of Destiny**
Publisher:	**Origin/Mindscape**
Price:	**£29.99**
Reviewer:	**John Sweeney**

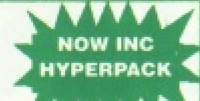
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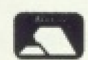
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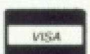
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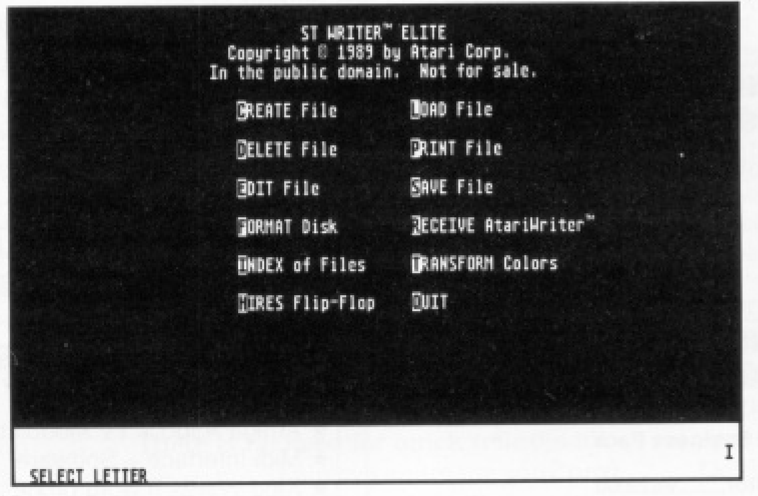
PD Paul Rixon's WORLD

WORD PROCESSING ON THE CHEAP - BUT WITH ALL THE FACILITIES YOU COULD NEED

Word processing is probably the single most popular productivity application of the microcomputer. In both the business world and home environment, the micro has proved itself as a reliable, cost-effective and versatile successor to the humble mechanical typewriter. It's therefore not entirely surprising that Atari Corporation, just separated from Warner Brothers after Jack Tramiel's takeover in 1984, were keen to bundle a word processing package with their new line of 16-bit computers. Atari had already produced a respected word processor - Atariwriter - for the 8-bit machines and a direct ST conversion seemed a sensible line of action. Time was of the essence, and in just two weeks AtariWriter was transformed into, the appropriately named program, **ST WRITER**. This was a usable program, liked by many, but it suffered from a plethora of bugs which would need to be resolved before it could hope to compete with the increasing tide of new commercial packages. Atari were less than concerned - their view was that ST Writer was complete and, as it was free, they did not plan to commission any further development. In fact, Atari had decided (understandably, perhaps) that ST Writer - which made no use of GEM whatsoever - was not the ideal package to promote the WIMP environment of the ST, and to dump it in favour of GST's 1st Word. Many people, who weren't exactly enthralled with the prospect of pointers and windows, were less than happy with the situation. One Bruce Norman was so enthused with ST Writer that he took the step of approaching the author for access to the source code, with a view to making the amendments himself. Much to his surprise and delight, Atari agreed for him to have the code, and after much time and effort he had created a greatly improved version.

STWRITER LIVES ON!

Many word processors have since appeared - and disappeared - on the ST but ST Writer lives on in the Public Domain as the first, and possibly the only one to have commanded such an enthusiastic following. Its strength undoubtedly lies in the careful balance of comprehensive functions (some seldom found in the 'professional' packages) and ease of use - as the author says himself, "if I could print with ST Writer in just 5 minutes, why shouldn't all word processors be so simple?". If you're an ex-Atari 8-bit owner (or a lucky existing one!) accustomed to Atariwriter then obviously you will have no problems whatsoever adapting to ST Writer, as it's almost exactly the same! Starting up the program you are faced with a familiar full-screen menu of commands to carry out the basic file maintenance processes. Here there's also an option to transfer files from an Atari 8-bit to the ST via an 850 interface module and null modem cable. If you have these components to hand, transferring files is straightforward.



STWRITER - full facilities at a ridiculous price

FUNCTION KEYS

ST Writer utilises the 'F' keys and control-letter key combinations for all its editing facilities. Every alphabetic key is assigned to a process, and many others are too. Although it seems daunting at first, the functions of particular keys have generally been well thought out and are eminently more memorable than the ridiculous assignments peculiar to certain other packages (such as the awful Wordstar on PC machines!). Pressing a control-letter combination usually inserts a corresponding, red coloured code into the text - it's anything but WYSIWYG! However, this can be a considerable advantage in some instances. One of ST Writer's most powerful features is its ability to create double column documents. Some word processors achieve this by requiring the user to manually shift blocks of text into columns, thus restricting any subsequent editing. ST Writer allows you to specify all four column margins in a document which are then used at the time of printing. Other features of ST Writer include mail merge, search and replace, printer font control, automatic paragraph/section numbering, file chaining, undo delete, alternate character sets and comprehensive page formatting - the list goes on!

ONE RESTRICTION

A minor complaint of ST Writer is that documents aren't stored in ASCII format and so can't be viewed directly from the desktop (this was necessary because the 8-bits use a non-standard code for the carriage return character and the ST equivalent is already in use for another function). However, it's still possible to create source listings and "Read.me" documentation files by using the 'print to disk' facility.

On the subject of documentation, ST Writer is supplied with a generous helping of reference material on disk. There's a detailed manual comprising some twenty pages of alphabetically-arranged

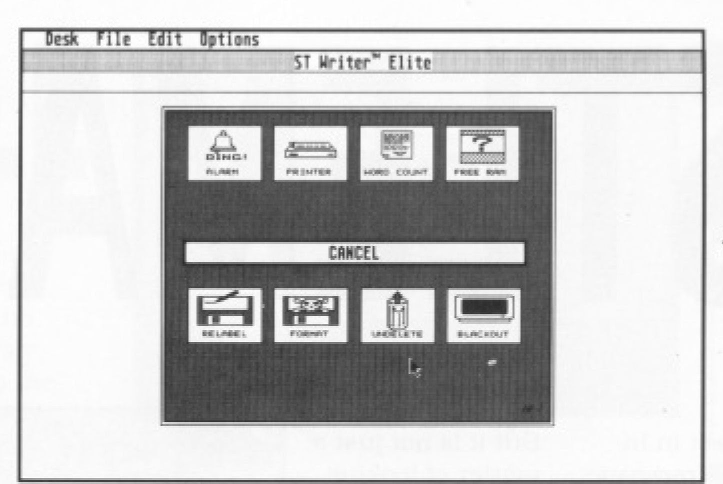
information in addition to a command summary sheet, five-page quick reference guide, lengthy tutorial and a copy of the article 'ST Writer Secrets' which previously appeared in an issue of 'Start', containing intriguing insights into the history of the program and problems encountered during its development. There's also a function key template and a test file for checking out your printer. As the documentation is supplied in ST Writer format, you can examine the files for hints on how to apply many of the features. Learn the codes, discover the power and I'm sure you will agree that ST Writer is a quite excellent program. You'll find the latest revision, 1.9, on a disk entitled **WORD PROCESSING 1**, along with various printer drivers and print spoolers for use with the program.

STWRITER ELITE

What?. You mean you bought your ST to escape from those nasty key-press menus? Well, don't worry! - the story of ST Writer doesn't end with the completed text-based version. Even before this, the author was contemplating a GEM version of the product and this eventually materialised as **ST WRITER ELITE**, which has since reached version 3.8. Booting Elite for the first time you'd be forgiven for thinking that you'd mistakenly bought the old version, but click on the mouse button and a few surprises await you. The old Atariwriter-cloned text menu is replaced by a series of trendy GEM drop-down menus. These allow you to carry out disk maintenance functions more easily than before, and also introduce some new facilities. There's now 'save to ASCII' and printer driver selection options together with a useful global feature to set overall margins, text pitch, justification and more. Once you've selected the edit option, the GEM menu disappears and you're back at the familiar editing screen with a flashing cursor prompting you to type. Even here, there are differences. Click the button and the pointer appears on screen so you can use the mouse to position the cursor in the text. Click again and it disappears - it really is quite clever! You can revert to the 'traditional' menu at any time if you wish, although the GEM variety is definitely much easier to handle. The only drawback is that overall, ST Writer Elite runs marginally slower than its predecessor, though not annoyingly so. It really is a super program, and it's complimented as before with a large manual (fully revised) and various reference guides, articles and test files.

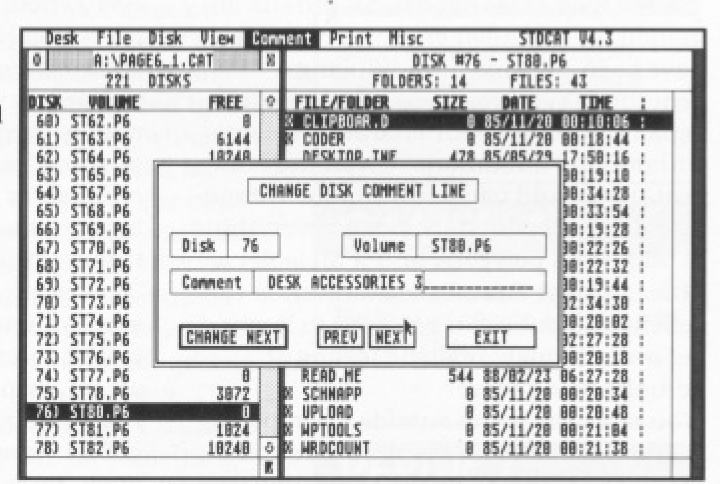
DESK ACCESSORIES

One of the benefits of Elite in GEM mode is that it gives you access to the desk



WP TOOLS - a useful and comprehensive collection of utilities for word processing all contained in one desk accessory

menu, where you can have lots of useful (and almost essential, in the case of a spell checker) accessories installed to increase the power at your fingertips. Last issue's PD World should have given you quite a few ideas, but one I didn't mention then is **WP TOOLS**, which you'll find on **DESK ACCESSORIES 3**. It's an accessory which combines no fewer than eight utilities into a neat icon-driven package. With WP TOOLS installed you can check on free memory, word count documents, make printer selections, alter disk volume labels, un-delete files, format disks and set an alarm to remind you when it's time to pack up! You can even blank the screen while you leave the computer unattended to extend the life of your monitor and protect documents from prying eyes! Altogether, this is a highly recommended collection of goodies, whether you're using ST Writer or one of the commercial packages.



Find any program easily with the Catalog disk

SAVE MONEY TRY PD FIRST

As I've discovered, it's always wise to explore the Public Domain before splashing out on a commercial package. Many people have been surprised to find the program they had wanted on offer in the Page 6 library, virtually free of charge! I'd intended to cover a lot more word processing utilities and programs in this issue but space has beaten me again and the subject will therefore be carried over to the next instalment. If you would like to contribute a suggestion or recommendation then please do not hesitate to drop me a line.

THE PAGE 6 CATALOG ON DISK

Don't forget to ask PAGE 6 for your free copy of their library catalog. It's now also available, for a small charge, on disk (minus descriptive text), thanks to a clever PD utility called **STDCAT**. Wild cards can be used to search for specific files, such as those with an 'ACC' extension, or 'RAM' in the filename. The catalog contains a full list of disk contents and file sizes for all of the standard library disks, specials and clip art collections, so you can easily find the programs you need.

If you're into PD, don't be without it, it's invaluable!

HOW TO GET THEM

All of the disks referred to in this article are available from the PAGE 6 PD library. Each has a unique reference number which you should use when ordering or enquiring about the software. Please contact PAGE 6 if you don't have a copy of their Accessory Shop leaflets and check the system requirements for each disk. The disks mentioned in this article are:

ST18 - WORD PROCESSING 1
ST80 - DESK ACCESSORIES 3
ST73 - ST WRITER ELITE 3.0
THE PAGE 6 CATALOG DISK

Prices for standard disks are £2.95 each or £2.50 each for 10 or more. Write to PAGE 6, P.O.Box 54, Stafford, ST16 1DR Telephone 0785 213928 or FAX 0785 54355 with credit card orders

CASTLEMASTER

Castle Master is the latest in Incentive's line of Super Freescape games. While others pursue animation and detailed graphics, Incentive have been working on producing a genuine 3D environment which you can explore, through your character's eyes, without any limitations. Given the current power and capacity of home computers this unfortunately means everything is built from polygons and it all looks a little chunky! The effect, however, is excellent and once you get used to it you do get an amazingly realistic feeling of actually being there.

You start the game outside an imposing castle; your objective is to rescue your twin, imprisoned somewhere in this vast stronghold. To succeed you will need to explore thoroughly the four levels of the four towers, the courtyard and its buildings, the labyrinthine dungeons and caverns below and a couple of places outside the castle. On the way you will need to find ten keys and ten pentacles, and defeat (by rock-throwing) a couple of dozen "spirits" who have possessed various creatures in the castle ranging from mice to dragons! As well as generally mapping the place (mostly very easy) you will need to search very carefully to find all these items.

To help you along there are numerous clues (mostly rather obscure) printed in some very strange places, plus lots of food and drink to restore your health.



Title:	**CASTLE MASTER**
Publisher:	**Incentive/Domark**
Price:	**£24.99**
Reviewer:	**John Sweeney**



But it is not just a matter of looking everywhere. You need to solve some interesting puzzles as well, mainly involving pushing buttons or doors or throwing rocks at things. You can "action" anything you can reach - it will be interpreted as eat, drink, read, push, move, collect, examine, open, unlock or use as appropriate.

You can Run to get along corridors or across the courtyard quickly, Walk to avoid bumping into things quite so often (one of the weak points of the system!), or Crawl. Crawling is very important as it not only gives you a completely different view of things which is critical to finding a number of the items, but it also allows you to negotiate obstacles which are otherwise impassable. You will need to do a lot of crawling, rock-throwing and actioning to solve all the problems!

As you explore the castle there are three sets of separate movement going on simultaneously:

* your body can move and turn (mouse or keyboard);
* you can look up and down (mouse or keyboard);
* you can aim for rock-throwing or actioning (mouse only).

You cannot turn and aim simultaneously with the mouse, but you CAN if you use the keyboard for turning and the mouse for aiming, definitely a must when fighting spirits! This is especially important in the caverns where I found the best technique to be to move forward and do a U-turn as soon as you land so that you get a better view of the enemy.

The game starts off fairly easily as both the booklet and a clue in the Wizard's Hut (round the back of the castle) tell you fairly explicitly how to solve the first problem, i.e. how to get the drawbridge open so that you can get in and get started!

Upstairs things get nastier, some spirits are difficult to spot and some attack you as a group; and those last few keys and pentacles are really quite deviously hidden! I wasn't too impressed to start with but enjoyed it more as I got deeper into the game; as you get used to the chunky look of things and find some of the more challenging areas of the castle you can get quite addicted to it. Finding the last couple of keys can be a little tedious as it is a matter of exploring every surface of every object in every room (I admit I cheated and got a couple of clues to help me finish it off!).

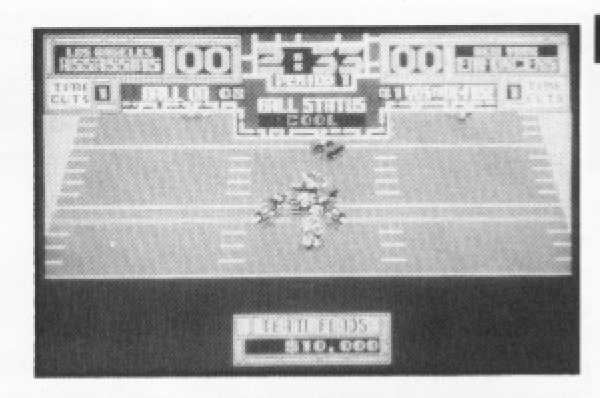
'definitely the best Freescape 3D Action Adventure so far'

I won as a Prince and tried again as a Princess - all that happened was that one clue and one pentacle changed places - did I miss something? As well as rescuing your twin you can go for a high score by collecting various pieces of treasure and performing a few special actions such as running between the goalposts in the ballroom!

The fighting is rather limited, and the whole place is rather small when compared to a DungeonMaster or an Ultima (I finished Castle Master in about three days as relaxation in the middle of a month or so on Ultima V), but it certainly makes an interesting change.

This is definitely the best Freescape 3D Action Adventure so far - a must for Freescape addicts and well worth a good look for those who haven't tried it yet, or didn't like the earlier ones in the series.

CYBERBALL



Tengen are set to rival Capcom as Arcade Conversion experts and Cyberball seems set to become a hit. The background to this futuristic game is that by the year 2038, the N.F.L. has become too dangerous for normal humans and thus the game is played by specially adapted robots playing in 6 man teams. The object is similar to that of gridiron except that the time a team has to advance the ball is limited by the temperature and explosive point of the ball.

Play is ingenious and the instructions list over 100 plays on Offence and Defence all of which look like good gridiron derivatives. A lot of care has gone into making the scenario close to reality. Plays are controlled by up to 2 players who run the same team, one controlling the Q.B. the other his running back or catching Wide receiver. There are no levels to play aside from the training mode which merely refuses to allow the option plays that provide the zest of the game. Plays are chosen from the four choices the computer offers the player but although it is possible to choose a run or pass option the computer selects four of the wide variety of plays in each category thereby diminishing player choice and control considerably and removing a lot of tactical choice.

Once the chosen play is up and running the robot under player control turns silver and if a pass is intended it must be thrown to a flashing mark while the receiver must make its way there at the same time. This works well and with practice an effective gameplan evolves. The computer defends well but does not attack as well and games tend to grind into a stalemate situation. This can be combatted by the most appalling bug which resets positions, when a ball goes out of play at the opposite end of the field with the defence behind the offence rather than ahead of them! Occasionally the whole game crashes when the computer player goes out of play. This is a major failing and I trust the company will do something about it. That aside the game is very good and is one of the better Gridiron simulation variants around.

Cyberball is certainly worth buying but check for the bug.

FACTS

Title: **CYBERBALL**
Publisher: **Tengen (DOMARK)**
Price: **£19.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Good sprites with a smooth scroll available, the sound is adequate but not great

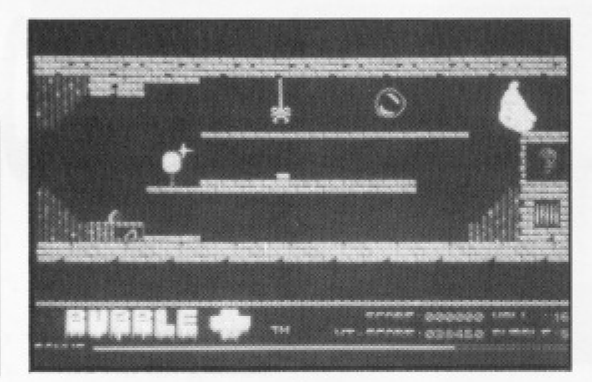
GAMEPLAY

Fast and pleasant apart from the lack of choice of plays and the silly bug

VERDICT

Not bad at all so long as it will stop crashing, a proper league option would have been nice too

BUBBLE +



FACTS

Title: **BUBBLE +**
Publisher: **Infogrames**
Price: **£19.99**
Reviewer: **John Sweeney**

SIGHT & SOUND

Good graphics, lots of nice sound effects for all the nasty machinery in the rooms

GAMEPLAY

Very easy to pick up and play straight away, a little frustrating when you are trying to be precise

VERDICT

A different sort of arcade game, worth adding to your collection if you are fed up with endless blasting!

BUBBLE + is an updated version of one of the classic arcade games from the early days of the Atari - the old favourite Bubble Ghost. It has been 'enhanced' with new graphics (I think I prefer the old style - but never mind!) and new facilities such as a PRACTICE feature which allows you to try any of the 35 levels.

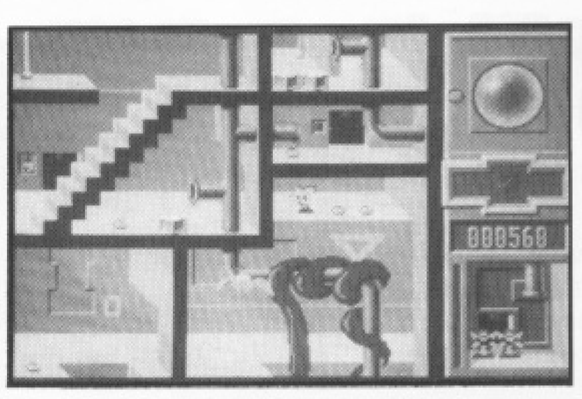
The game is very simple in concept: you are a ghost who has to help a little bubble get out of a big scary house by blowing it past all the deadly obstacles which could destroy it. The house is particularly deadly for a bubble as it is filled with sharp spikes, pulsating stars, razor-edged blades, electric beams, flames and all sorts of nasty things!

The mouse moves the ghost around, the left and right mouse buttons rotate him, and the SHIFT keys make him blow. Great precision and careful timing are needed to negotiate some of the obstacles, and the need to be SO precise is a little frustrating at times. The PRACTICE feature is, therefore, very welcome - I never really got very far with the original version as I got fed up of dying and having to replay the game from the beginning.

If you already have Bubble Ghost then the only real benefit you will get from Bubble + is the PRACTICE feature - the levels are all identical (at least as far as I have been able to get on Bubble Ghost) apart from the new graphics. But if you have not seen it before then it is well worth a look - it is a highly addictive (albeit simple and frustrating) little arcade game and it is nice to see it available again.

The first few levels are quite easy and lead you gently into handling your little ghostly friend - especially if you realise that bubbles are not the only thing it is worth blowing at! But when you get to level six you need to start being a bit more precise and some of the higher levels appear to me to be almost impossible - thank heavens for the PRACTICE feature! You get a bonus if you can clear a room before the timer runs out, so even on the easy levels there is some challenge if you are going for a high score.

THE TOYOTTES



Another French Comic Strip bursts onto the computer screen, accompanied by superb cartoony graphics and animation, lots of happy music and wonderful sound effects, and the usual incomprehensible plot. It probably makes more sense if you have read the comic!

The Toyottes are a race of rats who live in an underground world, afraid of being gobbled up by the monsters who live on the surface. The King's son, Barnaby, has got lost while playing with his football. You must find the Football, Barnaby and the Throne Rooms (in that order) or face "The Tweezers".

The game is a vast maze of paths, pipes, ladders, steps, holes, ropes, and teleport doors seen as a cutaway view from the side, with a perspective that allows you to move in and out of the screen as well as up and down, enabling you to get round the back of various pipes and stairs

The Toyottes is entirely joystick driven, the button allowing you to beat up the various monsters you will meet in the maze before they can beat you to death! Fortunately there is plenty of cheese around which allows you to recover your strength. Also scattered around the maze at random are various items such as flower-pots and hamburgers. These are needed as presents if you wish to pass the giant (mostly friendly) Guardians that block parts of the maze. Beware, some of the them will eat you if you get too close!

The maze is vast and there are dead ends everywhere, however there are also plenty of teleport doors which zap you to remote areas, and some very useful pipes which criss-cross the place and are a very fast way to travel as long as you don't meet any of the Pipe Cleaners!

A radar screen in the corner tells you which general direction to head in to reach your next objective, though once you spot it on the screen you may have to backtrack a bit to actually reach it as some of the places where the football is hidden are quite hard to reach!

The Toyottes is great fun to play, but I was disappointed to find that I managed to complete it within a couple of hours. Once you have got the knack of moving and fighting and worked out how to use the radar it is all rather easy.

FACTS

Title:	**THE TOYOTTES**
Publisher:	**Infogrames**
Price:	**£19.99**
Reviewer:	**John Sweeney**

SIGHT & SOUND

Very high quality cartoon-style graphics and very enjoyable music and sound effects

GAMEPLAY

Great fun and easy to play - frustrating when you can see the ball and can't work out how to reach it!

VERDICT

Initially highly addictive, interest drops off quickly once you have completed it. Excelent if you can get it at a reasonable price

CARTOON CAPERS

What do you get if you cross IK+ with a Tom & Jerry cartoon? Nope, not the latest Chinese stir fry meal but the first full price game to appear from Mandarin since the ill-fated Pioneer Plague. Actually, the game won the STOS games-writer of the year competition (which earned author Simon Cook £5000 in advance royalties) in 1989 and has taken all of this time to reach the shops.

You control mangy mutt Judo Jake in an all out battle against your feline foe Karate Kat in an epic cartoon film that will hopefully get you an Oscar nomination. There are 16 levels cycling around 4 'movie sets' (weird backdrops to you and me), with each level introducing an interesting twist to the game which makes it stand out from other beat-em-ups. In the first level a yellow bird flies across the top of the screen with a red bag hung from it's undercarriage, if you jump up this can be collected for bonus points, you can also grab the bird so allowing you to fly from one side of the screen to the other. Progressive levels have custard tarts and bombs flying about the screen that you can pick up and lob at your opponent, rockets zoom across the bottom of the screen, and more birds try to turn you into a dead dog or flat cat by dropping ton weights on your head. This game contains more violence than a Sardinian soccer stadium!!!!

Sound and artwork can make or break a traditional cartoon, or a computer game for that matter. Fortunately Cartoon Capers features samples galore and lovely animation sequences based on classic effects seen in Tom & Jerry and many other 'toons. The sequence when a player gets flattened by a ton weight is hilarious with the character walking around after being dramatically reduced in height by the offending object.

Although I think Cartoon Capers is good I do believe it has only limited appeal, after all once you've got fed up with the extra features it's just a basic beat-em-up with cute graphics. I do think it deserves a look though, especially if you are a fan of smash-your-opponent-to-a-pulp games.

FACTS

Title:	**CARTOON CAPERS**
Publisher:	**Mandarin**
Price:	**£19.95**
Reviewer:	**Peter Hickman**

SIGHT & SOUND

Very colourful graphics, although a bit chunky. Loads of samples ranging from the title music to the painful screams of the dog and cat

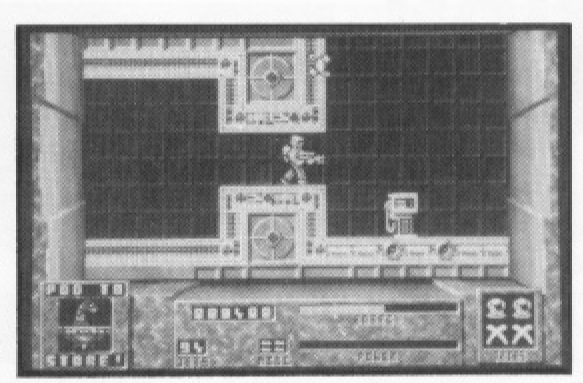
GAMEPLAY

Basic beat-'em-up with moves changing every couple of levels to keep you on your toes. Two player mode adds a nice element of competition

VERDICT

Fun at first but after you have seen all of the added 'extras' it reverts into being one of those games which you love to show your friends and relatives

DAN DARE III THE ESCAPE



The fate of mankind hangs in the balance as the Mekon menace returns determined to conquer and dominate the human race. The evil Mekon has vowed to wreak his vengeance upon his arch enemy Colonel Dan Dare. To further his plans the Mekon has been conducting a series of rather nasty genetic experiments on a variety of lifeforms, with the intention of creating an army of Treen like creatures which would obey his every command. The experiments failed, and what the Mekon required was a human subject to experiment on. Colonel Dare, the perfect subject, was captured and taken to the gigantic Treen satellite where the horrific experiments were being carried out. Luckily our hero manages to escape and finds, just by chance of course, a jet pack and plasma cannon.

This is where you take over! An escape shuttle has been found by our hero, and your mission is to explore the various levels of the satellite and find the fuel which is necessary to power the shuttle. The fuel, of course, is not all situated in the same place, as by some freak of chance the Mekon ordered that the fuel be split up in to five separate sections and distributed throughout the satellite. Dan has a number of weapons at his disposal along with the facility to buy extra lives.

Basically, this game is in the now 'standard' arcade adventure mould. You control your little man and move him around the vast complex of rooms whilst picking up things you might need, and shooting practically everything else with your 'plasma cannon'. The maze of rooms which you have to explore is quite vast, and scattered throughout are the discarded genetic mutations who don't take too kindly to a certain 'stiff upper lipped' British spaceman.

There are some nice graphics, but overall it is far from stunning. A great deal of work has obviously gone into the sprites and backgrounds, but they aren't really very well defined. Of note, however is the loading sequence, which tells the 'story so far' in traditional comic book style accompanied by a very good piece of digitised music. This sequence makes one expect a great deal from the game which turns out to be a little uninspiring.

FACTS

Title: **DAN DARE III**
Publisher: **Virgin Games**
Price: **£19.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

Nothing very special here. The loading sequence is good, but the game is of mediocre quality

GAMEPLAY

Great if you like arcade adventures, although there is nothing very original about it

VERDICT

It's another arcade adventure. The sort of thing which everyone used to rave about on the ZX Spectrum - not wonderful

ITALY 1990

FACTS

Title: **ITALY 1990**
Publisher: **U.S. Gold**
Price: **£19.95**
Reviewer: **Damon Howarth**

SIGHT & SOUND

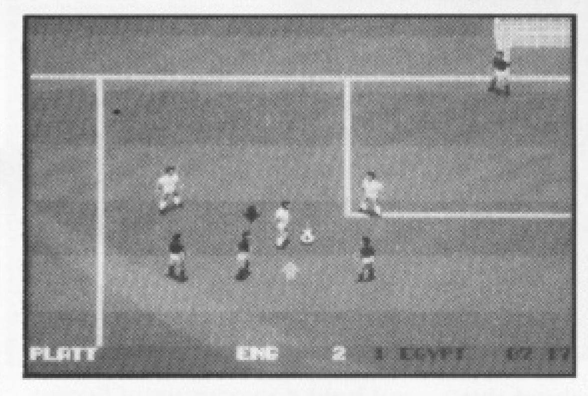
Colour is well used and sprites large and friendly. Spot effects fair, music not as good as it might be

GAMEPLAY

Nice strategic touches, very ordinary on screen game

VERDICT

More time on the actual gameplay rather than gimmicky packaging would have resulted in a better simulation. Still, an interesting souvenir



The U.S. Gold entry in the World Cup soccer race comes with an assortment of goodies. You are offered tickets to the final in Italy as a competition prize (a bit late now I hear you cry!) a book of world cup facts and world cup trivia, a mini poster, player profiles and team lists for all nations competing. What else could you want? Oh yes, there are also two disks.

You start with a menu to choose one or two players and whether or not to play in the championship. Once that is known you may then choose your country, graded in the various strengths and offered with a final overall total. Italy and Brazil rate 5 while Scotland rates 3 and Costa Rica rates 2.

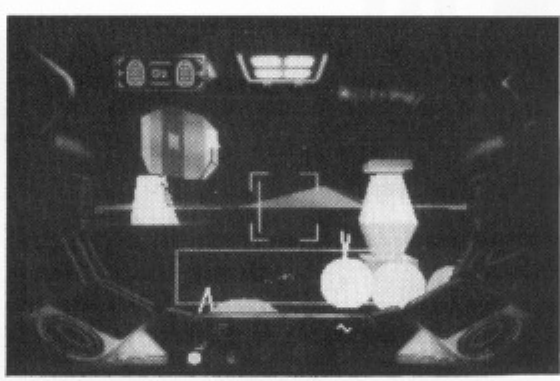
Once the TV link man has introduced your game the player may then select a formation and eleven players from the twenty two of the squad also graded in points. Players have Skill, Speed, Aggression and Overall Stats.

Once the team is selected the game begins, the duration of which is variable from 5 to 90 mins. Actual play of the game is adequate but has very little to offer that was not found in Microprose's International Football. Control is reasonable and different computer teams work at differing standards. It is far easier for Scotland to run rings round Costa Rica than it is for them to make headway against Brazil. There seems little control over dead ball situations although there is some standard animation for goal kicks and corners.

The actual playing standard does not meet that of Kick Off although graphically the game is superior and the screen does inform you which named player has the ball. The referee will use Yellow cards and Red cards but there seems to be little sense as to why (probably realistic).

Once the match is completed a results sequence allows you see how other matches got on. The prediction for the World cup final (not yet decided at time of writing) will be Brazil to beat Italy 2-1. If this is correct I take my hat off to a company who have made a strong simulation. On the other hand Scotland won their group with 5 points in this simulation. Well not everything works out!

INFESTATION



Far out in the icy depths of space the secret scientific colony Alpha II studies a nearby planet on which they believe they have discovered intelligent life. But soon the regular transmissions from the Alpha II colony become a desperate plea for help. An alien intelligence has infiltrated the base and is exterminating the colonists. Its intention is to use the complex as a giant incubation chamber for its deadly brood.

Thus runs the chilling introduction to Infestation.

You play the part of Kal Solar of the Interplanetary Federation, obviously a bit of a lad, as the Federation have decided that you are to complete the mission on your own! You have to infiltrate the base and destroy the mother alien and her eggs whilst at the same time you will have to put up with a spot of bother from these nasty droids and computers who have a sudden desire to kill you. My goodness, I've never come across a plot like that before, have you?

Whilst the idea behind the game is far from original, the execution and the style which Psygnosis have chosen to present this particular title is very impressive. The game is set within a three dimensional environment in which you are placed. Your view is from within your spacesuit as you move around the landscape of the planet and within the base itself. Those of you who are familiar with games such as Mercenary will feel quite at home within the artificial environment of Infestation as the style is very similar.

Through your exploration you will come across a variety of hostile creatures, along with a multitude of things which will either help or hinder you. These include such things as keys for opening the vast number of doors that you will undoubtedly come across, to ventilation tunnels for you to crawl through to reach other parts of the base.

In terms of play, Infestation is at first very difficult to get to grips with. There are a wide variety of controls for you to master in order to manipulate the objects within this strange world, and actually getting anywhere at all is a challenge in itself. It is far from obvious how you are supposed to enter the base from the planet surface. However, once 'inside', the game is both a challenging and interesting experience.

FACTS

Title: **INFESTATION**
Publisher: **Psygnosis**
Price: **£24.95**
Reviewer: **John Davison jnr**

SIGHT & SOUND

The presentation is excellent. The graphics are fast and smooth and the sound is of a high quality

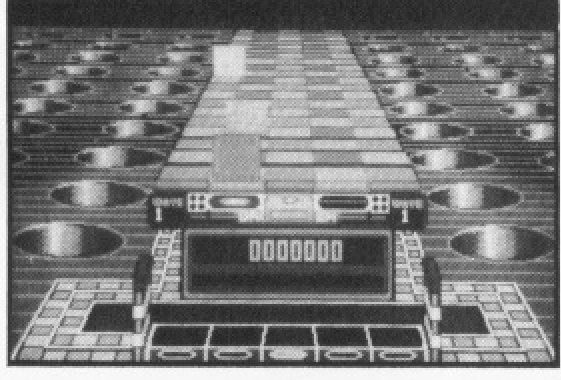
GAMEPLAY

Very difficult to begin with and a little on the frustrating side!

VERDICT

A superb game if you like crashing around alien landscapes looking for things

KLAX



FACTS

Title: **KLAX**
Publisher: **Domark**
Price: **£19.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

The graphics are colourful and are perfect for the game. The sound is of reasonable quality and adequate for its purpose

GAMEPLAY

This game's strongest point - it is thoroughly addictive and eminently playable

VERDICT

Another superb original idea which will hopefully start a trend for 'different' types of game

The concept behind this arcade conversion from Domark software is to catch coloured tiles as they move towards you on a form of conveyor belt, and then flip each tile into one of five bins. The object is to make 'Klaxes' which are same coloured stacks of tiles either as 'horizontals', 'diagonals' or rows of three. Once a Klax is made the tiles within it disappear, causing any tiles on top to drop down and replace them. You get a large bonus if you can cause a chain reaction of 'Klaxes' to occur.

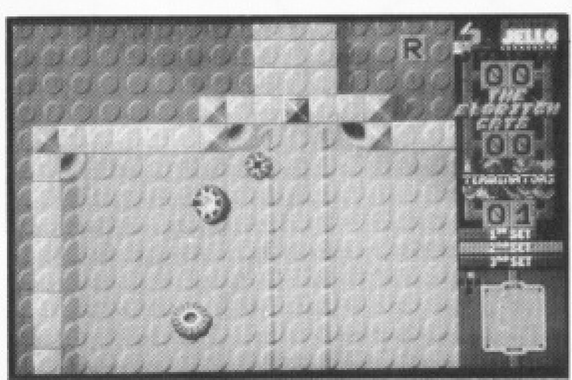
Your view of the proceedings is from the end of the conveyor belt as it moves the tiles towards you. At the bottom of the screen are the 'bins' where you deposit the tiles, and above this is your paddle. This can hold a maximum of five tiles at any one time and it also has the ability to push tiles back along the conveyor belt if you need to gain a few extra seconds. The game is played by completing wave after wave of advancing tiles, for each of which you have a different objective. For instance, on some waves you will have to create a set number of Klaxes, on others a set number of diagonal Klaxes.

All of the screens are very colourful indeed and the animation of the tiles as they tumble towards you is of a good quality. The sound is of reasonable quality, but there is nothing about it which is particularly memorable.

However, it is not the presentation of the game which is its selling point, but the totally addictive qualities that makes Klax something special. The game is thoroughly playable and is definitely one that is difficult to put down once you've started to play it.

It is rare for something original to be released nowadays, as the computer games market seems to be flooded with slightly different versions of the same thing. It is refreshing to see that there are still some ideas which have not been exploited fully. It would appear that there is now a trend which is moving away from violent games towards far more simple ideas. Klax is the fastest selling arcade coin-op in the U.S. at the moment. I do not find this difficult to believe at all, as it is both fun and original.

PROJECTYLE



This has all the style of Speedball and multi playability that I had not imagined. The game will allow up to 8 players in the league with up to 3 players at any one time using both joystick ports. The league may be up to 21 weeks or cup matches may be played instead.

The game is based loosely on air hockey and entails driving the puck from a central chamber into one of the other players chambers to score goals. There are three teams in the arena at once and winning and second place teams get points. It is possible to pick up icons for various effects or additions to your finances.

Each of the eight teams has its own anthem all of which may be selected at the menu. Each team has a squad which is trainable with the money gained during games and also interchangeable to various positions since injuries and different skills make players better in certain spots than others. As a game for one player there is a lot of skill involved and a great deal of excitement as your team travels to other home venues to play. Each team has it's own customised arena, ranging from fur carpets and ice hockey pitches to a red hell and even a Legoland set up.

Each arena offers slightly differing ball control and movement handicaps. Each match is different since the other teams, be they player or computer controlled, have the opportunity to train and be injured. The players even get tired as the game progresses and so their work rate will become proportionately lower. All players are named and those who score are credited with a face and an action replay if desired. The game also keeps top scorer tables and prints results for all games the computer plays on its own. Scrolling is very smooth and joystick control is positive. The sprites are individualised for each team and those for Eldritch The Cat's team are excellent.

The spot effects are loud and necessary, and include crowd noise at appropriate points. To my mind this game is even better than Speedball and has as much justification to become a cult game as that particular classic.

As with all simple basic ideas, the resultant game is fast and exciting. I will be very sorry to let this copy go back.

FACTS

Title: **PROJECTYLE**
Publisher: **Eldritch The Cat (Electronic Arts)**
Price: **£24.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Musically it has plenty going for it, the spot effects are strong and loud and the graphics are brash and sometimes innovative

GAMEPLAY

Almost perfect, it is a shame more playing area is not shown otherwise smooth and playable

VERDICT

My game of the month and of the year so far, addictive, fun and challenging. Buy it!

E-MOTION

FACTS

Title: **E-MOTION**
Publisher: **U.S. Gold**
Price: **£19.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

Wonderful! The use of colour is stunning and the sampled sound is some of the best I've heard on the ST

GAMEPLAY

Very addictive! A highly compelling game which is not only fun but also makes you think

VERDICT

The best game to appear for a long time, and well worth the money!

I would like it to be publicly known that I LURRVVE this game! It is one of the most original ideas I have seen in a long time, and in today's market of all games being practically the same, a bit of originality makes a game really stand out from the crowd.

E-Motion gives you control of a ship which can be rotated and moved in the direction which it is facing. The ship is used to push coloured spheres around the screen, and each sphere may be one of three different colours. At the start of a level the spheres pulsate slowly, but as time progresses they pulsate more and more quickly until they finally explode. Every time a sphere explodes, energy is lost, and when all your energy is lost, you lose a life.

The strategy of the game is to avoid the spheres exploding by pushing two spheres of the same colour together so that they both disappear harmlessly. If you should accidentally push two differently coloured spheres together, a small pod is formed. Initially this pod can be collected to gain extra energy however, if it is left it grows to become another sphere, which must be disposed of.

To hinder your progress on some levels there will be a number of pipes scattered around, which both the spheres and your ship will bounce off. This makes the propelling of spheres in the desired direction considerably more difficult. On other levels, some of the spheres may be joined by strong elastic bonds which cause them to drag along those joined to it.

In terms of presentation the game is incredible. The graphics are stunningly colourful and very well defined. The 'spheres' look very solid in appearance due to the clever use of shading, and the backdrops again show a clever use of shading to give a gradual 'pastel colour' type appearance to the screen. The sound is also quite wonderful. All of the sound effects are sampled and are of a very high quality. Likewise the music is a superb demonstration of what the ST is capable of when sampled voices are used. Overall I find it difficult to fault! It is incredibly addictive to play, the graphics are great, the sound is superb and it is one of the most original of games.

PeterHickman's

STOS COLUMN

In which Peter Hickman

... makes excuses for not going to the Atari Show

... is inundated with entries for the competition

... rattles on about AMOS

... and brings you the latest news and STOS related gossip

Phew it's been a busy two months since the last issue, and just so that I have room to tell you about everything there are only two program listings in this column.

Did you go to the Atari Show in June? Unfortunately I missed it, but people have told me it was really quite good, especially compared with the last couple of shows organised by Database Exhibitions at the Alexandra Palace. I heard that Aaron Fothergill (editor of the STOS club newsletter) was giving a demonstration of STOS on the Saturday of the event, he even showed off Skystrike Plus which is now being sold in a single disk form on the Atlantis budget label. I haven't actually seen this 'nearly new' release (anyone at Atlantis reading this?) but as soon as I do a full review will be published.

ENTRIES!

Competition news, yes I have had some entries!! You all had me worried for a short time there, but thankfully a few readers have come to the rescue with some very interesting platform games. So thanks to Charles Briscoe-Smith, David E.S.Hood, Richard Gale, and Fraser Newham for their brill games. If you want to enter the competition a list of all the information you need is contained in last issues column (if you don't have it you can buy a back issue directly from Page 6 Publishing). Actually I think this competition is jinxed, I sat down to send off a load of letters and disks to all of those people who had written to me and my printer died!! My trusty Epson MX80 finally decided to conk out on me, so it is now in the repair shop for a major overhaul and service. Now I cannot survive without a printer so two days ago I bought a very nice Star LC24-10, it's a real fabo printer that is lovely and fast. Anybody who hasn't received a reply from me concerning STOS now know's the reason, sorry for the delay and I will be in touch (eventually!).

THAT OTHER VERSION!

AMOS time.... If you haven't already seen it in the shops then let me tell you that AMOS (the Amiga version of STOS) was officially released on June 12th. To call it a version of STOS is a little insulting really, in fact it is to STOS what STOS originally was to ST BASIC - a major advancement. The first thing you notice when booting AMOS is the environment in which the program is edited, in many ways it is similar to GFA Basic on the ST with a word processor-like editing system and a separate direct mode to do things directly (makes sense I suppose!!). The size of the language is immense, the main file is about 140k!!!! Fortunately this space has not been wasted 'cos just about every part of the language has been revamped since it's STOS incarnation.

One of the biggest changes is in the way an object (SPRITEs to us, BOBs to Amiga owners!) is moved and animated, you can still use the standard STOS Move/Anim commands but with AMOS you can use AMAL (the AMos Animation Language). This new sub-language still uses strings to initialise the animation/movement but, oh boy, are they advanced! You can have loops, labels, goto's, move commands, anim commands etc. in one string thus allowing you to control really complex movements. It is even possible to read the joystick/mouse states on interrupt from within an AMAL string!! Take a look at the listing "AMAL DEMO" for an example of a typical string. AMOS also makes beating the 16 sprite/bob limit a million times easier than STOS.

Although there are many other major advancements in AMOS the most significantly interesting one for us STOS owners is the new structuring commands. Procedures with limited parameter passing are now available making AMOS a real hybrid language. On the down side the AMOS manual, although excellently written by Stephen Hill, is a very strange size and isn't ring bound!!! Unfortunately this means that when you are writing your latest mega-game you have to open the manual and jump up and down (pre

ferably when nobody is looking!) on the page you wish to read, this invariably leads to a tatty manual, complaining neighbours and flat feet!!! Bad move Mandarin. Still I would like to officially congratulate Mandarin and Francois for making the Amiga (a machine notorious for it's user un-friendliness) a joy to use. Can we have STOS Professional now please (ho hum....)?

FUN SCHOOL 3

Talking of Mandarin Software, Richard Vanner, development manager and part time vampire (private joke for AMOS owners!!), has just sent me some preview copies of the forthcoming Fun School 3 educational packages, all of which have been developed using STOS on the ST and then ported over to other machines (with enhancements where possible!). Now I don't like rattling on about products unless they really deserve support but this is one of those things!! As in Fun School 2 there are actually 3 separate packages, Under 5's, 5-7's and Over 7's. Each one is a masterpiece, words cannot do them justice, they are even (dare I say it?) better than my own Treasure Search program. The graphics are really fabo, there are samples galore but more importantly the subjects for each 'game' are more fun and meaningful than any other educational game I have seen. Watch this space for more information in the coming months.

PLAYING AROUND

By now you may have been wondering why I didn't pop along to the Atari show. Those of you out there in reader land who live in London will know that my address is quite close to the Novotel Exhibition Centre. Well I was busy playing with AMOS 3D!!! On Thursday the 31st of May I took a drive up to Oxford (thanks for the lift Carl!), city of bicycles, dodgy pizza restaurants, a giant sweet shop and a development company named Voodoo Software (strange name huh?). This amazing company specialise in 3D graphics, and not wireframe either, we are talking filled polygons zipping around at incredible speeds.

Anyway, before I diskuss STOS 3D let me tell you about a 3D game being developed by Voodoo for Electronic Zoo. The game is called Xiphos and features amazing graphics with incredible detail on the 3D objects, it looks really beautiful and features speed like you've never seen before. Totally irrelevant to this column but the game is so outstanding I had to mention it (sorry!!). Ok, down to the nitty gritty, to tell you the truth I couldn't see STOS 3D in action because their ST was in use at that time but I could see AMOS 3D and, wow, was I impressed! Just about all of the commands for 3D have been finished and are quite bug free, which is quite a feat for a product as complex as this. The 3D system is very fast, especially considering it is being controlled by an interpreted version of Basic, but if you are going to write an Elite-type game (and it WILL be possible) the game logic will need to be given a little extra zip with the compiler.

The current demo's I have got here are pretty mindblowing, the best being a giant logo of '3D' floating in a black spacey environment with stars (or spacedust, depending on how realistic you are!) in the background, by moving the mouse around you can zoom in, out, through, over, and under the '3D'. This is all in Basic - not a compiler in sight!! The actual package is due out in around September time, but until then I will keep you informed with regular updates, this is the most exciting software package to hit the Atari ST since STOS!!!! Oh and thanks to everybody at Voodoo for their time on that wonderfully warm and sunny Thursday afternoon.

```
A$="  Start: Anim 0,(1,5)(2,5)(3,5)(4,5)(6,5) ; "
A$=A$+"Loop: Let R0=Joy1 ; If R0=16 then Jump Bang ; Jump Loop ; "
A$=A$+"Bang: Anim 1,(7,8)(8,8)(9,8)(10,8)(11,8) ; "
Channel 1 To Bob 1
Bob 1,50,50,1
Amal 1,A$
Amal On 1
```

An example of programming in AMAL - the AMos Animation Language

A FEW SNIPPETS

More news from the Atari show. A little birdy told me that yet another new version of TOS was released in the last week of May, and guess what? It isn't compatible with STOS!!!!! I was going to buy a nice 1040 STE (I still only have a really old 520STFM, with half meg internal drive!!) but until Francois Lionet has time to write a new 'fix' for STOS I'm going to wait. Hello Atari, any chance of a few weeks notice before the next TOS is released? (please....)

Cartoon Capers is out, I have a copy it is quite good but unless you are a fan of Karate games I'd try before you buy.

Mistake time. Those of you expecting a Speaktex tutorial this issue are going to be disappointed, the disk containing this handy speech synth was destroyed in an accident involving a B&D electric drill, a cheese sandwich and roll of double sided sticky tape (yes it was painful - for the disk!). I promise it will appear next time!!

QUESTION TIME

Question time now. Regular reader Daniel Spooner has written with a question concerning those wonderful STOS traps listed at the back of the manual -

"At the end of the STOS manual in APPENDIX D it tells of the traps. The sprites, music, and windows can all be operated from within STOS, but I can't get the trap 4 functions to work."

Eeek, well Daniel I'm pleased to say it's not you doing anything wrong, it's STOS. Well more specifically it's a manual error. In the beginning of the STOS development there were trap 4 functions, unfor

continued ☛

tunately they were scrapped and somebody forgot to tell Stephen Hill so they stayed in the manual!

Daniel also wanted some information on compaction methods so that he could have a bash at writing a compactor for STOS along the lines of STOS Squasher. Well this is a really tricky subject, one which I don't have too much experience of. I'll try to dig up a good book on the subject over the next week or two and give you all some more info in the next issue!!

I also have a letter from Paul Chilvers who lives in Fareham, Hampshire.

"First of all, some time ago I seem to remember that you put out a challenge in your column, looking for a 'software copper', a routine to emulate the Amiga's copper chip and provide more than the usual 16 colours on screen, in horizontal bands across the screen."

Hmmm.... Yes I did mention something about splitting the colour palette a while ago, I actually wanted a routine to provide a similar rainbow effect to that found on the good old Atari 8-bit machines, but nobody sent anything in!!! So if there are any brill assembly language programmers out there who can provide a little routine to change the colour palette half way down the screen or do a rainbow on any colour register then send it in and I'll stick it in the next column.

Next an interesting enquiry from Herbert Spencer of Maidstone (is this starting to sound like Points Of View?).

"I am having trouble typing in the STOS programs from issue 44 of Page 6 New Atari User. The Problem relates to line 350 of Listing 1 on page 71 and line 5020 of Listing 2 on the same page. It doesn't matter how I try to get the line to list as printed it always comes out as:

trap 14,8,0.1MEM,0.1, .w DR, .w 1, .w 0, .w 0, .w 9"

The problem Herbert, lies in the fact that the lowercase letter 'l' looks incredibly like the number '1' when printed, that line should actually read:

trap 14,8, .l MEM, .l 0, .w DR, .w 1, .w 0, .w 0, .w 9

Where anything immediately following a full stop is actually a letter, either a lowercase B, W or L (which are short for byte, word, and longword). Hopefully because of the smaller amount of text/programs this issue the listings will be a tiny bit bigger.

Yet another letter, Stephen Claridge from Aylesbury writes:

"Is it possible to load Spectrum 512 pictures into STOS and display them in lowres? Also do you know of any good books on 68000 that are as easy to follow as the STOS manual was?"

To tell you the truth I don't actually have a copy of Spectrum 512, and I haven't heard of a routine to do what you ask, so if anybody out there does, please send it in (preferably with a demo picture or two please). As for a book on DIY 68000 I haven't really seen a good one (in fact 90% of computer books are not as good as the STOS manual!), but I will hunt around at the forthcoming 16 Bit Show (well it's over by now but as I am writing this the event is over two weeks away!) to see if anything exciting turns up.

The last enquiry (I promise), is from Eric Pearson who needs some help with printers (I'm not sure I want to answer this one!!!!) -

"I am using a fairly battered old Epson MX80 printer, this works perfectly well until I try to print with STOS. STOS seems to think the printer is wider than 80 columns and if the program line is longer than this the printer returns to the start of the line and overprints it."

This is one really weird, you see I never had such a problem with my MX80, and as you say later in the letter that you have no problems printing from STOS Word (which for those of you who are not STOS Club members is a word processor written by Aaron Fothergill in STOS!!) or from the desktop I can only assume that the problem is with your copy of STOS, try your printer with somebody else's copy of our brilliant language. It may be that for some (strange) reason STOS is not printing a chr$(10) (line feed) at the end of every line.

```
10 rem Wavy Ladder demo
20 rem By Mark Croft
30 Z=300
40 E=30
50 key off
60 curs off : hide
70 cls back : cls physic
80 locate 1,20
90 for D=1 to 36000 step 5
100 plot 100+20*sin(rad(D+E/3)),169+20*cos(rad(D+E/3))
110 draw to 200+E/20*sin(rad(D+E/4)),149+20*cos(rad(D+E/4))
120 draw to 200+E/20*sin(rad(D+E/4)),149+20*cos(rad(D+E/4))-10
130 plot 100+20*sin(rad(D+E/3)),169+20*cos(rad(D+E/3))
140 draw to 100+20*sin(rad(D+E/3)),169+20*cos(rad(D+E/3))-10
150 inc E
160 if Z-E<50 then inc Z
170 print
180 next
```

Graphics demos - Listing 1 above - Listing 2 right

PROGRAMMING TIME

Right, down to the program listings. Before I begin those of you who suffer from sea-sickness please skip the first program, you have been warned!

First up this issue is a wavy ladder demo by Mark Croft who sent it in as a listing, but he didn't include his address so I cannot write and say thanks!! Anyway thanks for the listing Mark, not only is it quite impressive but it is bound to make a few people reach for the bucket. Type in PROGRAM 1

HOW IT WORKS

LINES 30-40 Set up the initial variables, try changing 'Z' to 50 and 'E' to 500 for some other weird effects.

LINES 50-80 Set up the screen. Guess what, this demo works in all resolutions!!!

LINE 90 Starts up a loop. By changing the step value you can accentuate the wavy effect, but don't make it higher than about 15 otherwise the pattern starts to break up.

LINES 100-160 Do all the drawing, don't you just love all that wonderful maths (yuk!).

LINE 170 Scrolls the screen up by one character line by printing at the bottom of the screen. Why not try using 'def scroll' or 'screen copy' to move the display in a much smoother way?

LINE 180 Repeats that funky loop.

Final program for this column is one I

received from James Tetlow who also wrote a Jeff Minter style graphics demo which can be found back in the Issue 42 STOS column. This demo draws a 3D castle on the screen. Type in Listing 2.

HOW IT WORKS

LINES 10-100 Shows you that this program has been sitting in my filing cabinet waiting for a free space in the column!!
LINES 110-120 Set up the screen.
LINES 140-160 Print the programs credits in colour 4.
LINES 170-240 Set up a new screen and enlarge the credits.
LINES 250-470 Perform the complex task of draw that castle.
LINES 480-540 Create two large copies of the castle.
LINES 550-590 Let you save the screen as a Degas or Neo picture.
LINES 630-800 Hold the castle height information, numbers range from 0 (for a blank square) to 30 (for a tall building). Try changing them to achieve different effects.

Well, what do you think of the program? Good huh? Perhaps you could write an 'improved' version of the program which would allow you to alter the castle layout with a more friendly editing system?

SIGNING OFF

Ok, that's about it. I'm not sure what I've got lined up for the next issue. I've just been writing an ultra fast ASCII reader which holds the whole document in memory and allows you to scroll up and down it (well, it jumps up and down in pages), it's far better than the one that came with STOS so perhaps that may appear. If you do have any demo's or short program listings please send them in to share with other STOS users, and if there are any companies out there who are going to release STOS related products please send me a copy so that I can tell people about them (I've heard about a new art package written with STOS, but I have yet to see it!!).

I can be contacted at the following address:

PETER HICKMAN
36 CLEVERLY ESTATE,
WORMHOLT ROAD,
LONDON,
W12 OLX


```
10 rem ***************************
20 rem *                         *
30 rem *   CUBIC 3-D BUILDINGS   *
40 rem * BY JAMES TETLOW, AGE 14 *
50 rem *   30TH SEPTEMBER 1989   *
60 rem * ----------------------- *
70 rem * NEW ATARI USER MAGAZINE *
80 rem *                         *
90 rem ***************************
100 rem
110 fade 3 : wait 21
120 mode 0 : key off : click off : curs off : hide on
130 rem ** TITLE STRINGS **
140 TIT1$="CUBIC DEMO"
150 TIT2$="BY JAMES TETLOW"
160 pen 4 : home : print TIT1$ : print TIT2$
170 erase 10 : reserve as screen 10
180 screen copy physic to 10
190 clw
200 rem ** ENLARGE TITLE TEXT **
210 zoom 10,0,0,(len(TIT1$)*8),8 to physic,0,160,319,175
220 zoom 10,0,8,(len(TIT2$)*8),16 to physic,0,180,319,195
230 cls 10
240 palette $0,$733,$511,$622,$733
250 rem ** SET DRAWING PARAMETERS **
260 SX=160 : Y=40 : NX=0 : XD=4
270 AM=(164-SX)/4
280 rem ** MAIN DRAWING ROUTINE **
290 for N=1 to AM
300 read H : if sgn(H)=-1 then 490
310 if H=0 then 430
320 for A=0 to H
330 ink 1
340 plot NX+SX+4,Y-4-A : draw to NX+SX,Y-A
350 ink 2
360 plot NX+SX,Y-A : draw to NX+SX-4,Y-4-A
370 next A
380 ink 3
390 for T=-4 to 4
400 plot NX+SX+4,Y-4-A : draw to NX+SX,Y-4-A+T
410 draw to NX+SX-4,Y-4-A
420 next T
430 NX=NX+8
440 next N
450 if SX=160-(8*XD) then XD=-XD
460 SX=SX-XD : Y=Y+4 : NX=0
470 goto 270
480 rem ** DRAW TWO DOUBLE-WIDTH COPIES OF THE BUILDING **
490 screen copy physic to 10
500 clw
510 screen copy 10,0,160,320,195 to physic,0,160
520 zoom 10,120,0,200,Y+10 to physic,0,0,159,Y+10
530 zoom 10,120,0,200,Y+10 to physic,160,0,319,Y+10
540 screen copy physic to 10
550 rem ** SAVE TO DISK **
560 repeat
570 if upper$(inkey$)="N" then show on : F$=file select$("*.NEO","SAVE AS
NEOCHROME PICTURE",2) : if F$<>"" then hide on : screen copy 10 to physic : save
F$,10 else goto 570
580 if upper$(inkey$)="D" then show on : F$=file select$("*.PI1","SAVE AS DEGAS
PICTURE",2) : if F$<>"" then hide on : screen copy 10 to physic : save F$,10
else goto 580
590 until inkey$=" "
600 fade 3 : wait 21 : erase 10
610 default : end
620 rem ** BUILDING TOWER HEIGHT DATA **
630 data 20
640 data 15,15
650 data 10,1,10
660 data 15,1,1,15
670 data 20,1,0,1,20
680 data 15,1,0,0,1,15
690 data 10,1,0,0,0,1,10
700 data 15,1,0,0,0,0,1,15
710 data 20,1,0,0,0,0,0,1,20
720 data 15,1,0,0,0,0,1,15
730 data 10,1,0,0,0,1,10
740 data 15,1,0,0,1,15
750 data 20,1,0,1,20
760 data 15,1,1,15
770 data 10,1,10
780 data 15,15
790 data 20
800 data-1
```

I'm glad to see that quite a few of you are joining the official STOS club, who happen to publish their newsletter about a month after every issue of New Atari User goes out (what timing!) so you can keep up to date with all the STOS information between issue of N.A.U. For more information write to:-

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1 LOWER MOOR,
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MATHS MANIA

School Software have been around for a while now, and have produced a host of educational software in many different home computer formats - except the Atari. However, the company now seems to have seen the light and produced an ST version of Maths Mania, a five program package designed to help 8-12 year olds with arithmetic, logic, and memory training. The programs are as follows.

MIND GAMES: Mind Power is a simplified version of the old favourite 'Bulls and Cows', or 'Mastermind' as it became known commercially. Here, the computer secretly arranges a number of different coloured shapes into a random sequence, using every shape once. You then have to correctly guess the sequence by placing the shapes in a grid. The computer tells you which are correct, and after several goes you can eventually deduce the correct pattern.

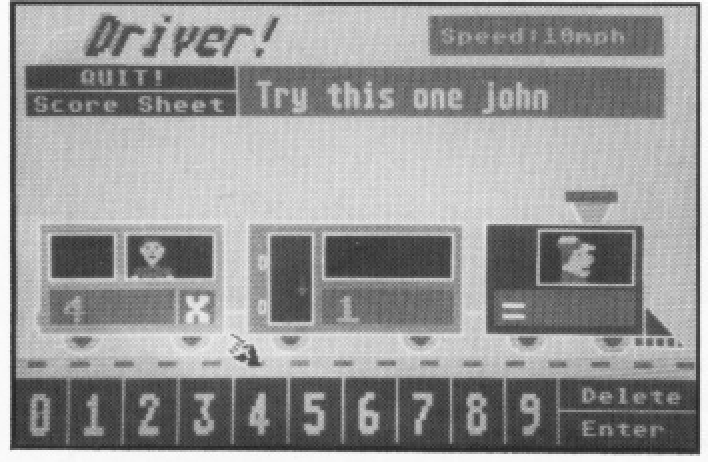
In Blast Off, five shapes are randomly placed in a 5 x 6 grid and displayed for a short period. During this time, you have to remember their exact positions. They then disappear, and you have to click on the grid squares to indicate where they were. Each correct answer results in a part of a large rocketship being displayed, and if all are identified correctly the rocketship blasts off. This is not as easy as it sounds, especially at the 'experienced' level, where you have to locate the shapes in the sequence requested by the computer.

ARITHMETIC PROBLEMS:

Memory Maths displays an arithmetic problem of the form 'A multiplied by B divided by C'. As you watch, the problem is gradually eroded from the screen, so you have to memorise it while working out the answer. Each correct answer adds a small pyramid to a pile being built up at the side of the screen, so the player can see how successful he's been.

In Driver you have to correctly answer multiplication or division problems displayed on the side of a train. A correct answer causes the train to trundle off the screen with puffs of smoke coming from its funnel. Each correct answer adds 10 mph to its speed, and the target is to reach full speed of 100 mph by answering ten questions correctly.

All Driver's questions and answers are recorded in a scoresheet, with incorrect answers highlighted. This allows a parent or teacher to quickly establish the player's problem areas. There seems to be a bug associated with this though, as on return from the scoresheet screen I found the program usually inserts a digit into the answer space for the next problem, which then has to be deleted before the player can input his answer.



The final program is Brain Boxes, where multiplication and division problems are displayed on the sides of boxes sitting on a scale pan. You place your answer in the other scale pan, and if correct the scales balance. 100 points are awarded for a first time correct answer, 50 points if correct at the second attempt, and zero if incorrect both times. A score sheet can be viewed at the end of each game (ten problems answered), and this shows the scores of the last eight players.

Maths Mania's graphics are big, chunky, and colourful and break no new ground - fairly typical of this type of program, in fact. Sound, again, is about par for the course, using a few beeps, burbles, and other sound effects to enhance the limited animation the program uses.

The program is controlled mainly from big, bright menus with selections made by mouse click or the function key displayed against each item. Each program has a selection of difficulty levels, and built-in instructions - a nice feature. Answers are input via mouse selectable buttons or directly from the keyboard where appropriate.

Most children in the 8-12 age group should be able to use Maths Mania without trouble. It's all quite well designed, apart from a few inconsistencies between the programs in button labelling. It passed the 'Pete Test' without trouble, i.e. it received an enthusiastic thumbs-up from my eight year old son. This must be a good sign, as he tends to be very critical of programs of this type.

I'm glad to see another educational program implemented on the ST, as this is one area that is still sadly neglected by ST software producers. Thanks to companies like School Software this situation is slowly being put right.

- ***GAMEPLAY** - very easy to understand and use, while offering a challenge to a wide range of abilities*
- ***SOUND AND VISION** - graphics and sound effects are unadventurous, but adequate for this type of program*
- ***VERDICT** - a welcome addition to the list of educational software for the ST*

Title:	**MATHS MANIA**
Publisher:	**School Software**
Price:	**£22.95**
Reviewer:	**John S Davison**